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ABSTRACT

The aim of this journal is to provide a forum for the presentation in print of the latest original research, chiefly by the faculty and students of the Department of Linguistics and related departments of the University of Kansas, but others not associated with the university may also contribute. Part I of this issues, on General Linguistics, contains the following papers: "The Phonological Rhythm of Emergent Languages: A Comparison between French and English Babbling" (Gabrielle Konopczynski); "/s/ Variation as Accommodation" (Felice Anne Coles); "Two Causative Constructions in Korean" (Dong-Ik Choi); "Connotations of Surprise in the Conditionals "to" and "tara" in Japanese: A Review and Synthesis" (Tim Van Compernolle); "Language as Fluid: A Description of the Conduit Metaphor in Japanese" (Masuhiro Nomura); and "Null-Expletive Subject in Japanese" (Michiko Terada). Part II, Studies in Native American Languages, contains the two following papers: "On Some Theoretical Implications of Winnebago Phonology" (Kenneth L. Miner); and "Numic [r] Is Not a Spirant" (James L. Armagost and John E. McLaughlin). An index of Native American languages appearing in "Kansas Working Papers in Linguistics, 1976 to 1993, is appended. (LB)

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Volume 18, 1993

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Kansas Working Papers in Linguistics

edited by

Giulia R. M. Oliverio
Mary Sarah Linn

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Part I: General Linguistics

THE PHONOLOGICAL RHYTHM OF EMERGENT LANGUAGE : A COMPARISON BETWEEN FRENCH AND ENGLISH BABBLING

Gabrielle Konopczynski
University of Besançon (France)

Abstract : The phonological rhythm of French is characterized by a tendency to syllabic isochrony within an utterance and a clear final lengthening, whereas the rhythm of English is stress-timed. A study of babbling at a turning period of the child's development has shown that the French child acquires adult phonological rhythm quite early in interactive situations. There is a strict initial isochrony followed progressively towards 13 months by a final lengthening which, from 16 months on, is the same as in adult speech. This kind of rhythm is not found in solitary play. A review of the literature on English babbling indicates that things are not so clear in the acquisition of phonological rhythm in this language, as its main characteristic, which is stress, seems to be acquired quite late.

This paper is concerned with the acquisition of the phonological rhythm of French and English by babies aged 9 to 24 months. The transition from babbling to early language has been the focus of a wide range of recent research which has an equally wide range of implications. On the one hand, there is substantial evidence of universal development, which seems to reflect a maturational process independent of the language environment. On the other hand, there is equally compelling evidence for early language-specific influences on babbling. As current research has produced much evidence in support of continuity between prelinguistic utterances and the speech which is going to follow, both kinds of processes could easily have been predicted. However, there are somewhat mixed outcomes perhaps in part because of differences in the types of language-specific influences that were investigated. Finally, most of the cross-linguistic research was restricted to segmental cues; prosodic cues have only very recently been looked at, and we have very few results. Therefore, in the present investigation on continuity and language specificity, I shall focus only on one prosodic parameter, rhythm.

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The data for French babies is drawn from experiments in my laboratory; for English babies, it is taken from the literature, which includes some experimental. evidence. To begin, I will define what I call "phonological rhythm" and, next, fix the limits of what I call "emergent language", and "turning point, or pivotal period".

The concept of phonological rhythm is not always clear. Allen (1980 : 227) devoted a long article to that subject, showing that

> rhythm is the structure of a sequence , i.e. the relationship or set of relationships among the units making up that structure..this definition leaves open what those units are; they can be features,segments syllables, words, phrases, etc . (...) Time is only one of several possible components of that structure.

Rhythm is called 'phonological' because it explicitly deals with the temporal-sequential constraints of a specific language, and it can be best understood within the framework of this linguistic level. As a matter of fact, some phoneticians think that rhythm is an individual speech act, even if each language has its own rhythmical characteristics which oppose it to other languages. But other phoneticians, quite as numerous, think that rhythm is a language fact, which has a precise linguistic function. For most languages, the basic rhythm, which is the rhythm of neutral utterances, is mainly determined by the accentual and temporal organization of an utterance. That is to say its rhythm is determined by the organization of pauses and accentuation. From this point of view, the French language is generally said to have a "syllable-timed tendency ", because its syllables are more or less equal in duration. I prefer the terminology proposed by Wenk & Wioland (1982) who describe French as being " trailor timed " because each group or sentence ends with an accent whose main physical parameter is duration (Delattre 1965, Llorca 1987) The final syllable is more or less twice as long as the internal syllables, which still are characterized by a tendency towards isosyllabicity. As its localization is imposed on boudaries, the function of this final accent is clear : it has a demarcative function, indicating either the end of a syntactic or semantic group or the end of the utterance.

Concerning the English language, it is said to have a " stress-timed tendency", because its basic rhythm is mainly determined by the stressed syllables, which appear at more or less equal intervals, the syllables in-between being compressed or extended in duration so that the intervals between stressed syllables remain nearly constant (Pike 1946). The main point in English is that the stressed syllable is noticeably longer, and higher in pitch, and the unstressed ones are shortened to the extent that they can disappear completely. Stress in English, mainly lexical, has strong grammatical functions, and even a contrastive one when opposing verbs to nouns (import/ import). This is but a very oversimplified description of the accentuation system of the two languages. In everyday spontaneous speech, a neutral utterance appears very seldom; on the other hand , the physical parameters of stress are numerous (pitch and intensity play an important role, especially in English, and also some segmental parameters); finally, diverse temporal structuration can exist in both languages. Concerning the French rhythm, for instance, variability and mobility have become its main characteristics in the recent years, and it should now rather be described in terms of "rhythmic possibilities/impossibilities" (Fonagy & Léon 1980, Dauer 1983). But for emergent language, the description as "trailor-timed" has the advantage that it is simple, efficient and easy to apply to child language which is not yet very complex at the syntactic or semantic level. The same is true for English emergent language: stress-timing is an efficient concept, although we know that in adult language, English rhythm is in fact less dependent on interstress intervals than on the whole syllabic organization, with many closed syllables, with syllabic reduction, and more than one stressed syllable located towards the middle of the utterances (Fletcher 1991).

For the French language, I shall describe the babbling of the child at the turning point of his/her cognitive and linguistic development, between 9-24 months, between prelanguage and the beginnings of articulated and referential language, when the child passes from pure vocal play to the very first utterance of linguistically interpretable sounds. It is the important time during which the child must restrict his/her large vocal possibilities to some social and linguistic constraints. At this turning or "pivotal" period, the utterances of a hearing child look on the whole like the utterances of the target language, although they do not yet contain articulated and recognizable words. My study ends at 24 months when a basic syntax, with combinations of 2 or 3 lexical units, begins to appear.

Finally, one last point has to be specified before I turn to the topic of the child's rhythm. In previous studies (Konopczynski 1986a,b,1990), I demonstrated that during the pivotal period a very striking thing is that the child already knows how to use differentiated utterances appropriate to the context. When an auditory analysis was made using a large population and compared with an analysis of the situational context, there was a positive correlation between the utterance context, type of utterance and auditive characteristics of the utterances. Thus, it appeared that babbling is neither egocentric nor monolithic. On the contrary, it contains various types of utterances. For example, when the baby was alone, he emitted irregular blurred sounds to which the listener could not attribute a meaning. These utterances were called GIBBERISH. However, in an interactive situation with an adult, the sound production was more stable and a majority of listeners were able to attribute precise functions to an utterance, i.e., classifying the utterances into categories such as questions, callings, orders, etc. These were called Proto- or Pseudo-Language (abbreviated PL). Finally, when the baby was playing with a doll or an animal toy, his/her utterances were categorized either as PL or classified in an intermediate series (I shall not deal with this intermediate category here). My findings are consistent with Kadar's (1983) results. In his study, social interaction was distinguished from situations in which infants were playing alone. The duration and form of the air wave curve of vocalizations were analyzed for their occurrence in the different situations; they appeared to exhibit 'a situational sensitivity' in 5/6 month olds. So one should predict that it would be the same later on, which, as a matter of fact, I found to be true. Rome-Flanders et al (1992) arrive at the same conclusion after a study of a sample of 25 babies followed from the age of 6 to 24 months. On the other hand, D'odorico who studied the non-segmental features of five Italian infants between 4 to 11 months found that 'vocalizations were selectively uttered in relationship to their production until 9 months only' (1991:475), but the selectivity disappeared after 0;9. My findings to some extent contradict this conclusion. It should however be said that D'odorico is less interested in the environmental context than Kadar and I are, and instead focuses on the emotional state of the children. In my earlier studies several experimental situations were established (adult remote from the child, adult pretending not to see/hear the child) such that the children were likely to use their full linguistic competencies. The results of these experiments confirmed those I obtained in natural situations.

French Subjects

Method

Subjects and Data Collection. My population was composed of 12 babies who could hear well and had no birth problem, monitored from the age 9 months to 24 months. Two were studied in a familial environment , the others in a day-care unit. Recordings were collected each week during the critical period between 9 and 11 months, and once a month from 11 to 24 months, for the two babies followed at home, and two others. The remainding children were not followed as closely: they were studied half longitudinally, half transversally, depending on the periods they were at the day-care unit. The investigator, helped by an assistant, did the recordings with a Uher 4200 Report Magnetophone and for some sessions with a Nagra 4000S.

Utterance Sampling and Procedures. Everything except cries, emotive sounds like squeals, growls, laughing, and vegetative sounds was included in the sample. Utterances were divided into separate strings defined on the basis of sequences separated by a silent interval of 400 ms or more [1]. To give an idea of the amount of my data, I obtained from the two children recorded in their homes, during the pivotal stage 8-12 months, a large sample of 27 minutes of speech, once the longer pauses and noises were deleted. This sample was made of 2000 utterances, out of which 1830 were analyzed for this study. For the whole period of 8-12 months, 12 subjects followed longitudinally gave 16 hours of recordings, out of which 160 minutes have been analyzed instrumentally. It is the equivalent of the total amount of speech of a 2-year-old child in a 12 hour day (Wagner 1985). For the period 12-24 months, I have selected 800 utterances for each of the four babies followed longitudinally, and at least 40 utterances for two more day-care children;10 to 20 utterances were chosen from the other children to verify some particular points.

A three level analysis was undertaken.1) an auditory analysis made by 11 native listeners without any knowledge of the situation of the child while babbling/speaking. 2) an acoustic analysis was undertaken in order to measure the following parameters : vocal and melodic (Fo) characteristics, and rhythmic characteristics, especially duration and location of prominence. The duration measurements were made on oscillographic traces, with a wave sound line, a pitch

line and an intensity line in order to improve segmentation. 3) a linguistic analysis followed in which I attempted to find out if intonation and rhythmic patterns had a linguistic function in the child's early productions.

As a reference unit, I chose the syllable, which, at least for the child, seems to be both a perception and a production unit (Bertoncini & Mehler 1981, Lindblom 1983, Ladefoged 1983, Seguy 1984). The duration figures are given for the total syllable. It would have been interesting to make the measures on the vowels, simply to eliminate the differences in duration for consonants, and to permit me to compare my results with those of other investigators who measured only vowel length, but it seems sensible to note that the articulation of the youngest children is very unstable.So it is better to work on the level of the syllable which is less sensitive to variations in flow. (Kozhevnikov & Chistovitch1965, Nooteboom & Slis 1969). [2]

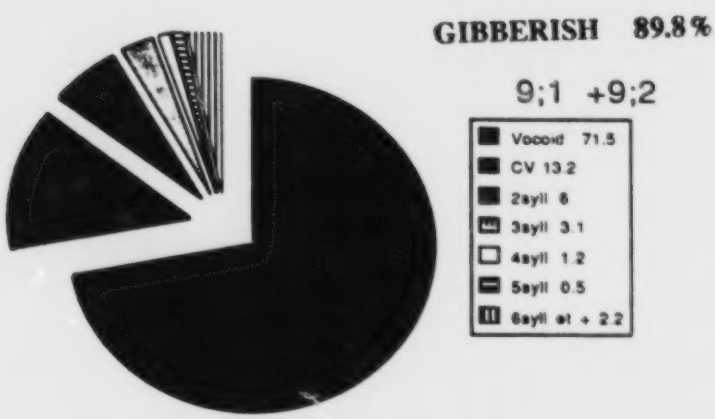
Results.

Syllabic Organization. The syllabic organization is completely different when the child is alone uttering GIBBERISH or when s/he is interacting with adults and emitting Proto-Language.

During months 9 and 10 Gibberish (fig.1) is mainly (71%) made up of vocoids. PL , on the contrary (fig.2), is mainly made up of CV structures which can be reduplicated, but this is not compulsory. Variegated babbling, whose beginning is predicted by Stark & Oller (1980) between 0;10/0;11, appears a little bit earlier. Structures with 2 or 3 syllables each represent 28% of the whole. Longer multisyllabic utterances represent 29% of the whole.

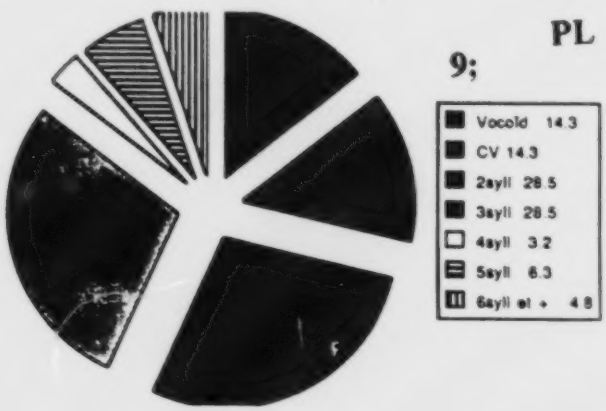
It should not be thought, however, that Gibberish and PL are only made up of the structures I just spoke about. Each category contains some of the structures typical of the other one. For instance, it can be seen from Fig.1 and 2 that Gibberish has 15% of multisyllabic utterances, and inversely PL has 14% vocoids. These findings are consistent with Levitt's (1991) findings.

More interesting is the fact that the vocoids of Gibberish do not evolve when the baby gets older. Of course, the total quantity of Gibberish diminishes, but in what is called "late babbling" which appears, for instance, in monologues, the 24 month old child, who is already able to produce articulated speech in other circumstances, still has Gibberish mainly made up of the same kind of vocoids as at 9 months.



Total # utterances : 467
Total # syllables : 545
Total # measured syllables : 418

FIG.1 : SYLLABIC STRUCTURE (%) OF UTTERANCES AT 9 MONTHS IN GIBBERISH



Total # utterances : 52
Total # syllables :126
Total # measured syllables : 63

FIG.2 : SYLLABIC STRUCTURE (%) OF UTTERANCES AT 9 MONTHS IN PROTO - LANGUAGE

Temporal organization.Temporal organization also contributes to contrasting completely the two categories. As can be seen from fig.3A, in Gibberish, the vocoids have extremely variable durations, going from very short elements to very long ones. The syllabic mean (M) is very high and the dispersion $(ET)^3$ enormous. The temporal repartition is totally random. Gibberish is a-rhythmical, no temporal organization can be found in these odd durations. This means that the child is exploring his/her respiratory and vocal capacities. As for the syllabic organization, these figures do not evolve with age and the same means are found in late babbling.

On the contrary, the PL's CV structures have a duration which has nothing in common with the duration of the vocoids in Gibberish. As can be seen from fig. 3B, the syllabic duration is quite short, and near (nevertheless +30%) the syllabic duration of adult speech, generally estimated at about 200ms. The dispersion is very low, and the temporal distribution is no longer random, but gaussian.

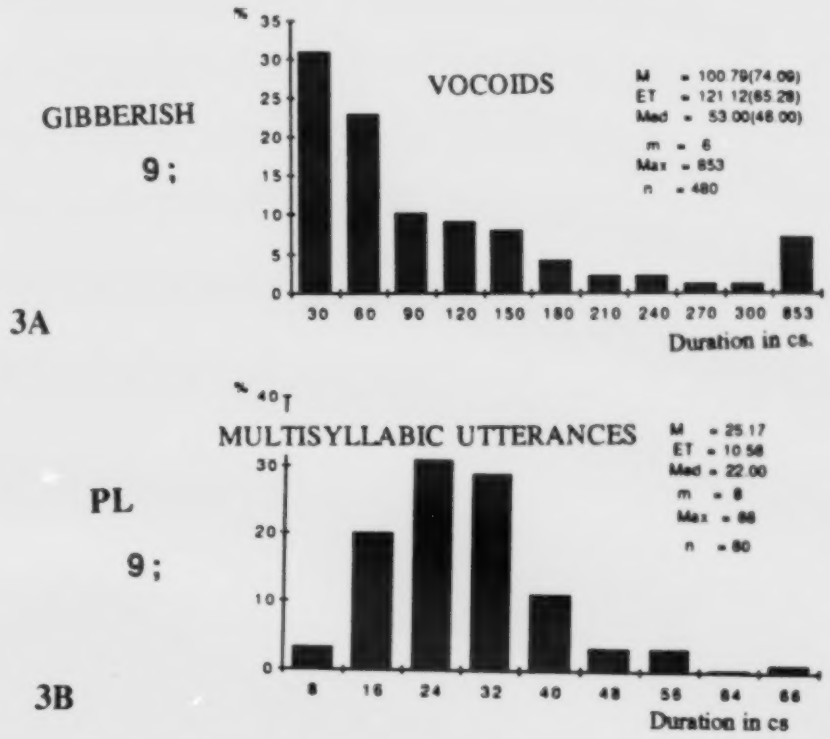


FIG.3 (A, B) : COMPARATIVE DURATION OF VOCOIDS in GIBBERISH (A) and in CV STRUCTURES OF PROTO - LANGUAGE (B) (9 Months)

One noticeable thing, compared to Gibberish, is the evolution of the temporal organization. First, at 9/10 months the syllables are all nearly equal. A clear isosyllabicity exists at the beginning of the PL. After that, the duration of the syllables depends on their position in the utterance. The non-final syllables (SNF) become gradually, nevertheless noticeably, shorter, as can be seen from fig. 4. The correlation coefficient or linear regression curve r = age/syllabic duration SNF = -0.763 (minimum significative value = m.s.v. for r = ± 0.63) becomes relevant from 10 months on. [4] (fig.5). Concerning final syllables (SF), they have an unstable duration for quite a long time, but as the non final syllables get shorter, the final ones seem to be longer, which is not true in fact if one looks at the duration figures. But there is a significant correlation (r = +0.663, m.s.v. = ± 0.59, slope = 0.46) between the duration of SF and SNF between 8-24 months.(Fig.6). Even clearer is the ratio SF/SNF which gets higher than 1.30, [5] which gives, from a perceptual point of view, the impression of final lengthening. Later on, towards 16 months the SF get even longer and finally they are twice as long as the SNF. So the typically trailor-timed rhythm of the French language, with its "point d'orgue" at the end of the utterance is acquired in the middle of the second year.

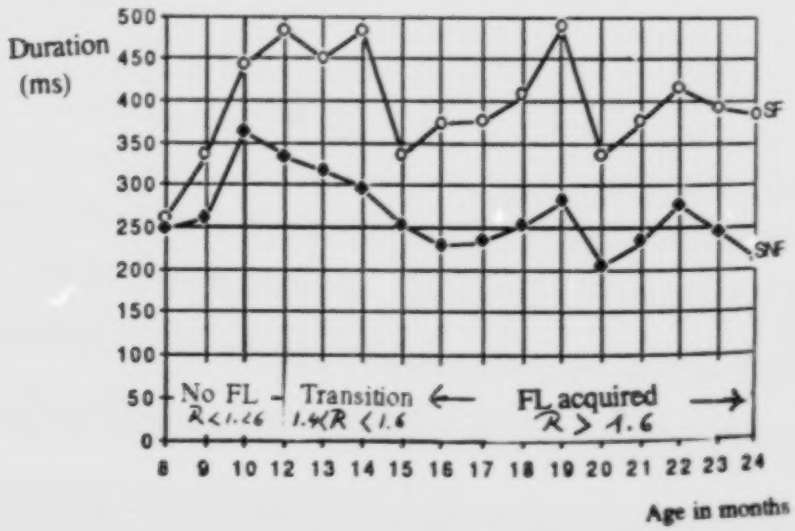


FIG.4 : EVOLUTION OF FINAL (SF) and NON-FINAL (SNF) SYLLABLES in PROTO-LANGUAGE Between 8-24 months.

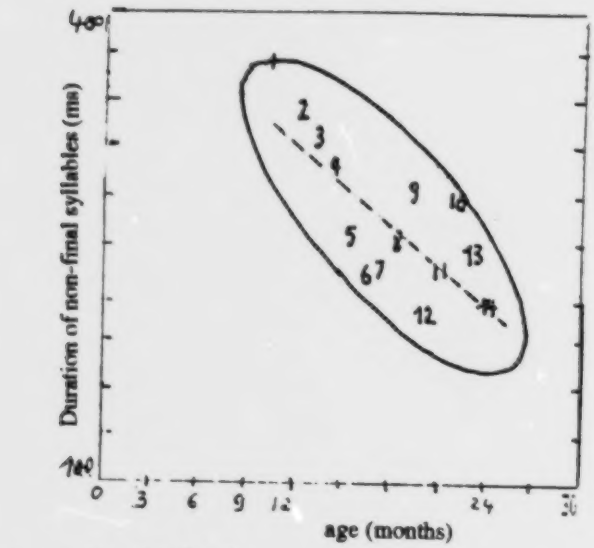


FIG.5 : LINEAR REGRESSION CURVE BETWEEN AGE (8-24;) and DURATION OF NON-FINAL SYLLABLES (14 subjects)

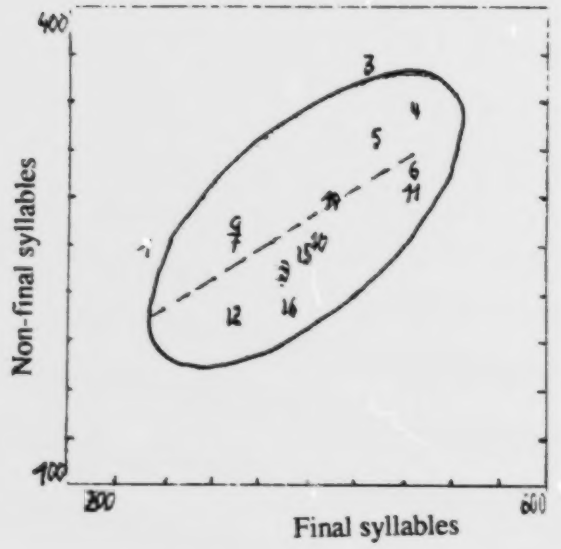


FIG.6 : LINEAR REGRESSION CURVE BETWEEN DURATION OF FINAL (SF) AND NON-FINAL SYLLABLES (SNF) SYLLABLES. (14 subjects)

Of course, if one considers the details, the evolution can sometimes be more complex, and it even presents some apparent regressions. Many studies of children's speech have observed tendencies towards decreasing duration and also decreasing inter- and intrasubject variability with increasing age. But these studies generally involve children who are no longer at the stage of emergent language. For instance, Kent & Forner (1980) observed that four- and six- year-old children showed longer and more variable productions than 12-year-olds and adults. Bruce Smith (1992) also worked on children older than the ones I studied. He compared two groups, one being 2;10, the other 4;4 years old. The same phenomenon of duration decrease was found. But all these children already had mastered their mother tongue, at least to a better extent than the babies I studied. So the discussion about a possible relation between decrease in duration and decrease in variability with increase in age cannot be made on the same bases. In my data, variability in duration and regression phenomenon appear especially in the final syllables. Contrary to the non-final syllables, there is no significant correlation between age/SF (r= –0,433, m.s.v = ± 0.63, Fig.7), because the duration of SF is very unstable through the different ages; only the ration SF/SNF reaches significance.

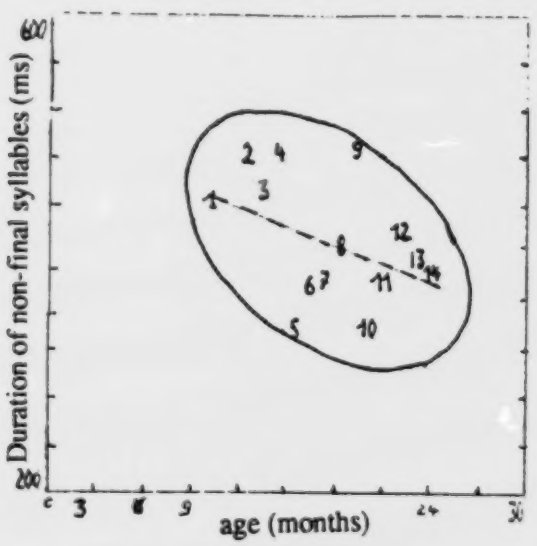


FIG.7 : LINEAR REGRESSION BETWEEN AGE AND DURATION OF FINAL SYLLABLES BETWEEN 10-24 MONTHS.
(14 subjects)

Is this duration variability a problem of neuromotor maturation? It cannot be determined at present from the studies I am aware of, but if it were, the same thing should happen to non-final syllables. Variability is often associated with imprecise, unsystematic or erroneous movements (Kent & Forner 1980, Sharkey & Folkins 1985), which is the case in emergent language, but here too, it should affect both final and non-final syllables. It could also be an indication of greater flexibility or less habitual performances by younger subjects. Another alternative mentioned by Sharkey & Folkins (1985) is that the greater variability could indicate that the speaker is exploring the capabilities or limitations of production, which is the explanation I gave for the very great variability of duration in the vocoids of Gibber. I suggest that variability in final syllables could be explained with this same kind of argument. The child tries to reach his/her target, which is a quite precise lengthening of the final vowel; sometimes s/he goes too far, sometimes s/he does not go far enough, which creates variability in duration. I think that this is a major sign of the fact that final lengthening is being acquired, and has to be acquired. It is not a passive process; as in every acquisition strategy, there are errors and successes before the child gets to the right target. Some other reasons, such as the fact that the segmental target becomes more precise, that new words are learned, that there may exist difficulties for combining elements, that some words are more frequent than others, and therefore more quickly learned, that the total length of utterance varies, and so on, can interfere and make the whole picture seem less clear than the evolution which has just been described. We studied these different factors in detail previously (Konopczynski 1986 a, b, 1990). Let's simply say that these regressions are only apparent, on the surface level, and that they reflect in fact a new organization at a deeper level.

At this point it seems worth quoting a contrastive study made by Allen (1980, 1981) on French, German and Swedish preschool children. It appears that even the French subjects, both in perception and in production at the youngest ages, are sensitive to place of stress, wherever it may be. This reflects general prelinguistic abilities that are not yet restrained by the properties of their specific language environment. But when they get older, by age five, the French children only imitate the items corresponding to the structure of their mother-tongue, and they transform the odd (to them) items so that they match with the temporal organization of French.

As a first conclusion, I can say that my study has shown that the typical syllable structure and the phonological rhythm of French are already acquired before one year and a half, and that my results are consistent with some others (Allen 1980, 81, Levitt et al 1991.)

Comparison With The Acquisition of Rhythm For English

Information about English-speaking children's acquisition of rhythm is rather limited. Only very recently have a few investigators (Allen 1981, a few researchers of Haskins Laboratories 1991,Wahlen et al 1991, Konopczynski 1991) tried to make a comparative study of the acquisition of prosody by English and French children. The majority of these studies are more interested in intonation curves than in rhythm (Robb et al 1989, Whalen et al 1991, Best et al 1991).

For the pivotal period, the main research studies on the rhythm of English speaking infants have been conducted by Delack (1974,75), J.A.M. Martin (1981), Oller (1980), Robb & Saxman (1990), and Levitt et al (1991). But Delack (1974,75) for instance, like many other investigators for other languages, does not seem to be aware of the fact that, at least from 8/9 months on, one should not indiscriminately combine Gibberish and PL utterances in the same corpus. As a result, his analysis remains very superficial: working on 19 children from 1 to 12 months, he says that duration, which lengthened slowly between 1 and 7 months shows the same progression until 9 months where there is a maximum (80cs.for males, 90cs for females), and then diminishes fairly quickly ending with 62.5cs at 12; (M: 60.5cs, F: 64.5cs). He concludes 'duration is the feature which tends to show developmental trends most saliently' (Delack 1975:97). It seems to me that the values given by Delack are erroneous and far too rough, because he put in the same basket all types of utterances and syllables. As a result, these values can only describe a very global evolution.

From the histograms published without comments by Kent & Murray (1982) for age 9 months some other information can be noted. The most occupied duration classes seem to be under 40cs, but the dispersion seems to be large, going up until 200cs.

J.A.M. Martin (1981) insists on the apparition, towards 8/9 months of 'adult-like structures', with some recognizable contoids, with CV, CVCV, VCVCV

structures (syllabic Mean with vocoids and CV syllables in the same bundle = 87cs.). He is the only one, other than me, - as far as I am aware of- to put the accent on the coexistence of both these older structures with vocoids and the newer ones with CV.

> There is an interesting mixture of vocal behavior...boisterous prolonged vocalization strongly reminiscent of those at 4/5 months, and some compact, very controlled vocal utterances... (their) structure and (their) quality is that of a single spoken word. (Martin 1981:80)

Oller 's position (1980) is nearer to mine. He insists that there is a big difference between the utterances before 7/8 months and those produced towards 9/10 months when canonical syllables, containing CV, CVC, VCV, CVCV appear; then, a 'relative rigid timing' is introduced. He calculates the duration ratio between syllables at different ages, and, as Konopczynski (1976), concludes that the temporal structuration, quite variable between 2 and 7 months, gets more stable towards 10 months and comes nearer the adult structuration, but he is not really interested in the evolution of duration. His preoccupation is final lengthening (FL). He finds out, from his 16 subjects, that at 10 months there is no FL in the English speaking child's production, but, as in French, there is isosyllabicity, at least in the reduplicated syllables he is studying. Their duration varies between 19.5 and 32cs. When final lengthening is found, it never exceeds 10%, which is not a perceptible increase in duration [5] ($0.93 < R < 1.24$). Adults pronouncing the same reduplicate syllables have 10 to 100% FL ($1.24 < R < 2.28$).

Robb & Saxman (1990) studied seven English-speaking babies from preword to multiwords, using a combination of chronological and lexical age points. At the beginning of the study the children ranged from 8 to 14 months (M = 10;) and all demonstrated reduplicated and variegated babbling. At the end of the data collection, they ranged in age from 19 to 26 months (M = 22;), and were all producing a bit over 50 words, as well as word combinations. It should be noticed that there are not the same children who are followed throughout the study.The data was composed of 6 041 utterances, in which 206 bi-syllables were found. Mean bi-syllables duration ranged from 532ms. to 1260ms, average 842ms. and no systematic change was found as a function of age. This is consistent neither with

Boysson de Bardies et al (1981) findings, nor with Konopczynski's (1986 a,b, 1990) which showed a punctual increase in duration in bi- and tri-syllables between preword and meaningful speech. Konopczynski explained this phenomenon, by arguing that,when a child is learning new words, containing no longer reduplicate syllables but syllables of the type C1V1C2V2, his/her neuro-muscular program has to slow down. Once he has acquired them, the speech of his/her speech increases again, and thus syllabic duration decreases. Would that not happen in English? Then, our explanation may be wrong, as it is a physiological one, and the English speaking children should have, for this particular point, the same kind of phenomena as the French speaking children. As for final lengthening, which is the main goal of Robb & Saxman's paper, they say (1990:591) that

> ... it was observed across nearly all recordings sessions for all children, whether recorded during preword, single-word or multiword periods, either in open or closed syllables ... (but) FL in closed syllables (is) consistently longer than in open ones, presumably because there is an additional time requirement for articulation of a final consonant .

The problem with their interpretation of the data is that the authors don't take into account the fact that FL, even if it exists in the raw phonetic data, has to exceed a precise threshold (R = final syllable/ non final syllable > 1 .30) [5] in order to be heard. They count as a FL every R that is > 1.0. So, reinterpreting their results we can see that, in CV structures, three subjects have no FL at all, and two have a slight FL which occurs after 17 months for one of them, and after 22 months for the other. For both it is in the period of more than 50 words. Finally, only two subjects have, from the beginning to the end of the data collection, a constant FL with R = 1.30 to 1.40. As the FL of most of the subjects cannot be perceived, it cannot indicate the end of a clause, contrary to the authors's thinking.On the other hand, in CVC structures, FL is present in all subjects, except one who has very unclear results; sometimes this child's FL is increasing for a few recording sessions, and sometimes it is decreasing. On the whole, it is not very consistent. Of course, I disagree with Robb & Saxman's conclusion (1990:592)

> We suggest that all children display FL in their pre-word vocalizations, and it is only after acquiring language and concomitant experience, that significant increases or decreases in lengthening occur. Thus the process of FL appears to be mostly a passive, non deliberate process ingrained within the physiological functions of the infant and is continuous throughout preword and multiword periods of development .

Added to that, Robb & Saxman say a few lines later that 'final lengthening is a deliberate prolongation of the final syllable to signify the completion of a purposeful vocalization' . There appears to be a contradiction in their conclusions : either F.L. is acquired, and non deliberate, or it is deliberate and then indicates the end of a clause (if it reaches perceptibility),but it can not be both at a same time.

These results, at least for open syllables, are consistent neither with Oller's findings, nor with Levitt's conclusions, nor with Smith's ones. They neither are consistent with my results on French, but this may be due to a difference of language, of course.

In a recent two-case study with one American male and one French female infant between 0;5 to 1;2, Levitt et al (1991) reported the same kind of work as I did for French infants from 1975 on. The authors don't study the typical vocoids of Gibber, and restrict their measures to two syllables or longer utterances. They confirm our results for the syllabic structure of PL, and add that, although multisyllabic babbling was significantly higher in their French subject than in the American one, the pattern of reduplicated and of variegated babbling was essentially the same for the two children. But the syllabic structure showed a difference, such that the French infant had, by 9/10 months, more open syllables, and this percentage remained fairly stable, whereas the American infant increased dramatically his percentage of closed syllables, from 2% at 8 months to 10% at 11 months and to nearly 25% at 14 months. This discrepancy is consistent with Robb & Saxman's (1990) findings and in general with the greater frequency of closed syllables in English than in French (Delattre 1965, confirmed by all the following studies on French and English phonetics). So, by the age of 10 months, English and French speaking babies have begun to produce the syllabic structure which is typical of their linguistic environment. The same has been shown for some very

broad segmental characteristics which are already language-specific in babbling, although no recognizable sounds of the language are produced (Boysson-Bardies et al. 1984).

Concerning the temporal organization of both infants studied by Levitt et al, the authors note (1991:57) that the French girl produced 'non final syllables that were on the average closer in duration to one another than did the American infant'. As for final lengthening in reduplicative babbling, both infants showed FL with gradual increase at 11 and 14 months but the French child was more regular, her only lengthened syllables being the last one. This is consistent with our own findings. The results for the American boy are less clear. Furthermore, Levitt emphasizes that they are based on too few utterances, and that the follow-up should continue after the age of 14 months, because 14 months is probably too early to study correctly the problem of final lengthening.

Keating & Kubaska (1978) find, at 28 months, for just one child, in words of two syllables, the same results as Oller (1980), that is, no final lengthening by that age. This is partly in contradiction with Bruce Smith (1978), who was also interested in final lengthening. He says that the English children have acquired FL by 2 years and a half, 80% of their final vowels, which are unstressed, being nevertheless 32% longer than the stressed non final vowels; later on there is no significant evolution. Children 4 years old and adults have the same results, but meanwhile they also have acquired a part of the stressing patterns.

Kubaska & Keating (1981) find FL later on (they don't tell us precisely at which age), when the child begins to combine two words. Then, the general syllabic duration is 25 to 36 cs. But they indicate neither the mean length of final syllables, nor the ratio SF/SNF. As a conclusion to the temporal organization at the pivotal stage, I shall quote Allen-Hawkins (1978 : 174)

> the (English) children's polysyllabic utterances typically follow a trochaic pattern, but since the unaccented syllables ... are still heavy... the resulting rhythm typically sounds syllable-timed

So, two languages like French and English, which are diametrically opposed by their rhythm in adult language, seem to have a quite close rhythm in babbling and very early speech, but differ nevertheless by their syllabic structure

and by the regularity/irregularity of final lengthening. By the age of one year and a half, the French child has already acquired the typical trailor-timed rhythm of his/her mother-tongue.

The question to answer now is : when does the English child acquire the mastery of rhythm of his/her language? How does s/he acquire it? In which order are the rules of stress-placing learned? When and how does the reorganization from syllable or trailor-timing to stress-timing occur? A last question would be : which kind of timing is easiest to acquire?

A striking thing is that almost no investigator of early English child language has studied the acquisition of stress, which is so important in English compared to French. Smith (1978) is an exception. He noted the appearance of some stressed syllables at 18 months. At first they are15% longer than the unstressed ones. But this is not a perceptible lengthening. Only towards 30 months does this lengthening increase to 20-30% compared to non-stressed syllables. Generally, stress is only focused on when the child, between 2 and 3 years old, combines some words. Scholars have regarded the langauge of children from three points of view : perception, repetition and spontaneous speech. Stress is said to be perceptually well located from 30 months on, more or less (Mc Neill 1970, Slobin 1973, Grunwell 1975, Gathercole 1976, Klein 1981). In repetitions, the location of stress is also well imitated at the same age.

Other rather scattered remarks on repetition in 2 to 3 year olds seem to show that stressed words are better remembered and reproduced than unstressed ones because they carry the meaning (Brown & Fraser 1963, Bellugi & Brown 1964). But Scholes (1970) disagrees, saying that when form words and function words have the same stress pattern, nevertheless the second ones are forgotten. When this is tested experimentally with nonsense words (Blasdell & Jensen 1970) stress is shown to be an important cue for perception, the items which are the best remembered being the ones with a final accent. This seems to be true even in languages like Czech which carry an accent on the first syllable; nevertheless children omit these first stressed syllables more often than the last unstressed ones (Pacesova 1959). Concerning spontaneous speech, the remarks are quite anecdotal, and based on purely auditory impression, even without any counting of present/omitted syllables, for instance. Some tendencies typical to English are noted, like omission of some pre-tonic syllables. For example, Weir (1962) says

that her son at 30 months uses stress in accordance with English speaking habits, but many think she overinterpreted her child's performance. Some other examples can be found. Braine (1963:10) quotes that there is a difference of stress location in the speech of a child opposing 'baby chair' (small chair) to 'baby#chair' (the baby is in the chair); the same is found by Miller & Erwin (1964) whose subject Christy says 'Christy room' as a possessive opposed to 'Christy room' as a locative = Ch. in the room. This happens in four of their subjects. Bowerman also (1973) reports that her daughter Kendall stresses 14 times out of 17 the object in subject-object utterances, and 10 times out of 12 the possessor in utterances indicating some kind of possession. From a few examples like these, Slobin (1968:70) and Menyuk (1971) conclude that at the two-word stage stress is used to mark grammatical differences, without taking into account the following important advice by Erwin & Miller (1964 : 29)

> this may be true from a phonetic , perhaps even from a phonemic stand point, but does not necessarily entail the use of prosodic features in the grammatical system

We could also object that the above-mentioned examples don't show the utilization of the contrastive accent, but rather an emphatic accent, because, in each example, the children's items are obtained as a response to a direct question, like 'Is that the baby's chair? '.The child adds a stress because that is the only way for him/ her, at this stage, to answer the question as posed. According to Maratsos (1989:113) use of emphatic stress is learned 'fairly early'. But how early does he mean?

Some studies are more precise. Wieman (1976) who analyzes five children between 21 and 29 months in two-word utterances, controlling the emphasis parameter, gives support to the preceding intuitions. But the most interesting part of her study lies in the fact that she finds out that the child always gives privilege to semantic relations over syntactic ones, and that s/he stresses in a systematic manner the new element. This gave, at that time, a confirmation to Chafe's theory (1970) saying that there is a hierarchy in accents depending on whether the information is new or given. Wieman gives many examples. However, let me say that emphasis and focus on new information are two very close notions. Besides, all the authors I cited, and also Nelson Smith (1973), and Menn (1976) insist that the stress pattern

which has been shown does not occur regularly and that the child makes a lot of accentuation errors. This pattern simply may have been focused on because it is easy to notice it auditively in speech. So Brown asks (1973:115)

> Are the phonetic features, independent of word order, which create response types reliably associated with particular relational meanings? The answer is negative. Eve did not reliably signal her presumed semantic intentions with suprasegmental features .

Presently, arguments in favor of a precocious acquisition of stress as a grammatical marker in English are inconsistent. Nevertheless, the various examples show that between 2 and 3 years children perceive in the acoustical signal something which is called stress, and that they can reproduce it at the right place in a lexical item (Ingram 1976, Klein 1984). However, they don't seem to use it as a grammatical marker. What is beginning to be acquired is presence/ absence of a kind of prominence, but neither the hierarchy of accents nor the rules of stress patterning. Harriet Klein's study concludes (1984 : 388) :

> (The child's) hypotheses about stress application tend to vary... (His/her) use of stress at this stage (...) appears to be lexically based. Learning to stress may be a gradual process complicated by interactions of lexical and phonological factors (...). Words becoming more stable within the phonological repertoire soon acquire more consistent use of primary stress. Consistent primary stress placement appears to be one of the characteristics of achievement of the integration of the segmental and prosodic features of the word .

So, phonological contrastive stress does not appear before the end of the third year, and the relations between the different stress patterns do not seem to be mastered before 6 years, which is beyond the 'tranche d'age' I am involved with in this paper.At this point of the research on acquisition of stress in English, I would propose a tentative explanation : may be the input baby talk, with its very strong emphatic stress, often replacing the regular stress patterning, could be one of the reasons of this late acquisition of stress in English. All these data, even

scattered, contrast with theoretical affirmations (J.G. Martin 1972, R. Kent 1976) which predict that in stress-timed languages, where sentences are phonetically dominated by accented elements, these stressed elements are programmed before the others. So, the stressed syllables should be the first targets in the articulatory program. This may perhaps be true in adult speech; it does not seem to be the case in emergent speech.

It is also noticeable that all the studies I cited deal with stress as a whole, without giving details about its physical parameters. Only Allen and his co-workers (1978,1980,1981) tried to specify which parameters are used by the child. For instance, when stress falls on the final syllable, English children use mainly a temporal parameter: they lengthen the final syllable up to double duration. But when stress falls on a non final syllable, preference is given to rising pitch. Moreover, Allen emphasizes the large intra- and intersubject variability that he noted.

General discussion.

Instrumental and linguistic analyses of the rhythm of babbling of a dozen of French babies and comparison with the data coming from the literature for English speaking babies showed clear evidence of similar developmental patterns, presumably due to universal processes of maturation, as well as of the prelinguistic influence of the adult language environment.

Evidence of general developmental effects is apparent in the syllabic structure, which is the same in the two languages before 10 months. It provides some evidence in support of the developmental stages of babbling as described by both Stark (1980) and Oller (1980), although the presence of variegated babbling prior to their predicted onset is consistent with our findings, as well as the findings of B.L.Smith et al (1989), Mitchell & Kent (1990), Robb & Saxman (1990), and Levitt et al (1991) Evidence of general development is even more clear in the temporal organization which shows not only comparable mean values in duration of the syllables in the two languages, but above all a tendency towards isosyllabicity not only in French, where it could have been predicted from the adult language, but also in English where predictions would be some prominence in the child's language imitating more or less the stress pattern of English. These results tend to show that final lengthening does not seem to be innate, as many phoneticians think

(Oller 1973, Cooper-Sorensen 1977, Lyberg 1979, Robb & Saxman 1990). Final lengthening would rather be an acquired behavior, as it appears progressively, shows some regressions, and corresponds to a precise stage of entrance in referential language (at least in French, and, from Robb & Saxman's data, also partly in English,). So I do agree with Nooteboom (1972), Klatt & Cooper (1975), Lehiste (1983), Allen & Hawkins (1978) and many others who consider, sometimes not very explicitly, that final lengthening, although being a "natural" phenomenon found also in music, in birds singing..., is not innate but has to be acquired. [6]

The evidence of language-specific effects is also clear, and appeared from the syllabic structure in longitudinal analyses from 11 months on, when the English-speaking child has more and more closed syllables. The temporal organization of babbling revealed evidence of the characteristic isosyllabicity of French from 9 months on. The typical trailor-timing was found from 13 months on, whereas the English children who have been described seemed to show only subtle differences from the French ones, in the sense that they also had isosyllabicity and final lengthening, like the French babies, but it was not as consistent as in the French early speech.

In general, our findings agree with recent findings of language-specific influences on both the prosodic (Levitt et al 1991,Wahlen et al 1991) and the segmental (Vihman et al 1986, Boysson-Bardies et al 1984, 1989) level of babbling before the end of the first year. However, some of the timing differences that emerged from both Levitt's (1991) and our study, suggest that the language environment may affect the rhythm of babbling even earlier than its segmental characteristics. Moreover, the rhythm of French babbling from 13 months on is not only language specific in its phonetic properties, but it already has a linguistic function, the demarcative function of final lengthening in French. For this acquisition, three tentative conclusions can be put forward :

- from a linguistic point of view, the child must have integrated the overall organization of the utterance which appears as an overall system with each syllable having its own relative duration according to its position.

- from a cognitive point of view, the integration of the syllabic duration into the system can show the onset of a new stage in cognitive development marked by the appearance of a relational structure between the whole and its parts.

- from a communicative point of view, the final lengthening could be an indication of good acquisition of the turn-taking rules in dialog, which of course have begun to be learned earlier, but with many errors. We noticed that from the moment the child has acquired final lengthening, there is very little overlapping in the 'dialogs' between mother and baby.

There does not yet seem to be any clear linguistic function of rhythm for the English speaking babies at the same age. Nevertheless, the studies of English speaking babies' rhythm are so rare, made on such few subjects, and on so few utterances, that

> clearly the prosody (rhythm and intonation) of infant's babbling warrants further cross-linguistic research (Levitt et al 1991 : 61).

Presently, it seems that, even in languages which drastically differ from one another from a rhythmical point of view, there is an initial isosyllabicity, towards 9 months, when babbling has become canonical. This isochrony could be due to an internal neural clock, as Allen (1973) hypothesized. This first, more or less universal stage, could be followed some months later (towards 13;) by a more or less strong final lengthening. Still later does the typical rhythmical patterning of a language appear, at a speed depending on the complexity of stress patterning and on the language-specific constraints which give to each language a specific rhythm with specific linguistic functions. Before answering these questions, we need more studies on rhythm and its function in the emergent language of many different language communities. We already put forward a tentative answer to these last questions in a beginning cross-linguistic (English, Portuguese, German, Hungarian) study of prominence (Konopczynski 1991b). We think that in languages were prominence has a stable location, as in French, the accentuation pattern can be acquired easily and quickly, because the model offered to the child does not have too much variability, even if there exists, of course, quite a large intra- and intersubject variability in spontaneous speech. But in languages were prominence is at variable locations within an utterance, as in English, the child, who has no stable model, has much more difficulty finding out the rules of stress patterning.

NOTES

1. We suggested 400ms. in 1975 at the VIII Int. Congress of Phonetic Sciences, Leeds. It is based on the fact that the mean duration of pause in adult speech is 250ms. (Grosjean & Deschamps 1972) and that the general tempo of child's speech is half as quick as the tempo in adult speech. Almost all researchers in babies' language took that duration, with a few exceptions.

2. For more details, cf. Konopczynski 1986 a,1990.

3. ET stands for Δt = standard deviation. Med = Median. m = minimum. M = Maximum. n = number of syllables in the sample. Duration is given in cs. instead of the classical duration unit which is the ms. because of the scale of the figures.

4. The correlation coefficent r is always between ±1; the more r is close to 1, the better the correlation between the variables. A positive correlation indicates that the two variables evolve in the same direction; with a negative correlation, the variables evolve in opposite directions.

5. The ration R= SF/SNF is significant when R>1.20, which corresponds to a increase of duration of 20%, minimum increase necessary for a phonetic lengthening to be heard (Rossi 1972, Klatt 1976).

6. For an argumented discussion on this subject, cf. Konopczynski 1986b, 1991.

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/S/ VARIATION AS ACCOMMODATION

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Abstract: The few remaining fluent speakers of the *isleño* dialect of Spanish vary their casual pronunciation of /s/ in a manner consistent with, but not identical to, other Caribbean Spanish dialects. The behavior of /s/ in the speech of nonfluent *isleños* parallels that of fluent speakers, differing only in the higher degree of aspiration and deletion. This variation by *isleño* semispeakers can be regarded as a type of speech accommodation called 'upward convergence' expressing social integration and identification. Fluent speakers are accorded prestige for preserving the culture's oral traditions, and semispeakers are motivated towards integration and solidarity by varying their pronunciation of /s/ to resemble the perceived behavior of /s/ in the speech of fluent speakers who are identified as prestigious.

A well-known sociolinguistic process in American Spanish dialects is the de-occlusion of /s/ in syllable-, word- and utterance-final contexts (Hispanists commonly referred to this as '/s/ aspiration and deletion '). The few remaining fluent speakers of the *isleño* dialect of Spanish, a dying language spoken in a small ethnic enclave in southeast Louisiana, vary their casual pronunciation of /s/ in a manner consistent with, but not identical to, other Caribbean Spanish dialects. Less fluent members of the *isleño* social network also vary their pronunciation of /s/ with more or less success to parallel that of fluent speakers in group conversations.

First, a brief sociolinguistic background of the group is in order. The *isleños* settled in the marshlands of southern Louisiana after they arrived from the Canary Islands (hence their name, *isleños* 'islanders') to the newly-acquired Spanish territory in 1778. They established an isolated community where *isleño* Spanish was the primary language until the 20th century, when public education, military service, and occupational opportunities brought American English to the group. Today there are fewer than 100 speakers of *isleño* Spanish, probably fewer than 20 fluent speakers, with semispeakers and passive bilinguals comprising the rest of the scattered population of 1,000.

Isleño Spanish is characterized by Lipski (1987: 95) as 'a partially fossilized derivative of the speech of Canary Island peasants, with small additions from the speech of Spanish sailors who wandered into the community in the late 19th and early 20th centuries.' In addition to /s/ variation, other linguistic features of the dialect include spirantization of /d/ and the 'bidirectional alternation' (Ma and Herasimchuk 1971: 376) of /r l/ (called *trueque de líquidas* 'liquid exchange' by Hispanists). Specifically, the de-occlusion or deletion of /s/ in various contexts is an overt linguistic indicator of *isleño* speech which members of the *isleño* social network recognize as a feature of their language. /s/ plays a prominent role in style-shifting for all *isleños*; this will be demonstrated by the fact that a semispeaker will delete /s/ much more frequently in casual conversations with ingroup members than

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in a dyadic interaction with an outgroup interviewer. The frequency of /s/ deletion of the semispeaker is much higher than that of the Spanish-English balanced bilingual, suggesting a process of speech accommodation.

To compare with Caribbean Spanish, Longmire (1976: 155) states that 'when the consonant /s/ is followed by an unstressed vowel, it is more likely to be deleted than if it is followed by a stressed vowel.' Cedergren (1973: 110) and Poplack (1980: 373) note that in Panamanian Spanish and Puerto Rican Spanish, the deletion rate for inflections is higher than for monomorphemic variables. Puerto Rican Spanish deletes /s/ most frequently in second person singular verb forms, correlated with a high usage of the subject pronoun *tú* (Hochberg 1986, Terrell 1978, Uber 1981). In addition, Ma and Herasimchuk (1971: 389) have stated that the determiner position as the first element in a plural-marked noun phrase is a favorable morphemic environment for /s/ conservation; however, this is by no means categorical (Poplack 1980: 375). Terrell (1982: 51) suggests as a consequence that not morphemic status but redundancy in surface structure is correlated with /s/ deletion: because so many elements of a noun phrase may carry plural marking, its deletion is more likely than a single instance. The redundancy factor will be important later in analyzing the infrequent speech of semispeakers.

The *isleño* dialect of Spanish contains the de-occlusion or deletion of /s/ variably according to the factors previously identified by Cedergren (1973: 46):

> the nature of the following segment;
> the existence of a word boundary;
> the morphemic status of /s/;
> the type of *s* suffix; and
> the grammatical environment of the plural.

Lipski (1990: 22) tabulates the behavior of /s/ in *isleño* Spanish in the phonological environments syllable-finally before a consonant; word-finally before a consonant, a stressed vowel, and an unstressed vowel; and utterance-finally, discovering that deletion is most common word-finally and de-occlusion most common in a consonant cluster. His study encompassed only fluent speakers gleaned from both inside and outside the ethnic enclave, whereas the majority of the population is passively bilingual or less fluent in the dialect. Nonfluent *isleño* Spanish speakers (called 'semispeakers' in Dorian 1977: 30) also vary their pronunciation of /s/, although their decreased competence limits the number of styles they are able to produce along the formality continuum.

If /s/ de-occlusion and deletion remains a marker of the *isleño* dialect, then we would expect all members of the *isleño* social network regardless of proficiency to use this marker more in ingroup interactions (called 'casual style' as a point of reference in the style continuum) than in conversations with outgroup interviewers (called 'interview style'). In order to examine this claim, I first investigated /s/ de-occlusion and deletion in various speech styles along the style continuum of fluent *isleño* speakers and then compared these findings to the corresponding behavior of /s/ in the speech of semispeakers using the categories already defined by Lipski (1990) as important in the behavior of /s/. Campbell and Muntzel (1989: 195) call stylistic shrinkage one of the noncontroversial points of dying languages. The younger speakers of the *isleño* dialect do not (or no longer) possess the

performance style of singing *décimas* (10-stanza ballads) or telling *adivinas* (riddles). These genres of narration require a high level of competence in order to reproduce the forms faithful to the oral history of the group, and only two informants regularly use performance style any more. One informant estimates that at one time there were as many as 200 *isleño décimas* that could be sung by various members of the enclave. Some of the more famous ballads are still sung, but only the oldest informant (age 95) recalls any *adivinas* from the *isleño* oral tradition.

An obvious social factor in the decline of performance style is the opening of the social network. As enclave members lived and worked outside, the opportunities to observe and create *décimas* about group members diminished, in addition to the overall problem of the lessening importance of Spanish. Hence, today's semispeakers possess only a 'restricted code' (Hill 1978: 46) which allows them to participate marginally in informal conversations but not to produce an 'elaborated code' for *décimas*, *adivinas*, or narratives.

I interviewed 15 informants extensively; the data in this particular study are taken from about 50 hours of speech from five balanced bilinguals and two semispeakers. The speakers were recorded in interviews with me and with each other in group discussions in which I only observed. These informants are moderately to highly active in the *isleño* social network. I have to say outright that the social norms of the *isleño* community dictate that in group interactions younger and less fluent speakers attend to older and more fluent speakers rather than actively engaging in conversation. Because semispeakers rarely talk at length in these group interactions, these data will not be statistically robust but will be used to point out certain tendencies.

/h/#C

CC: *No hay* [ɛh'kwela], *no hay...e...iglesia ni hay nada.* [ɛh'tamos] . *en . nohotro que como los indio... Pero no semos indio.*
('There weren't schools, there weren't...e...churches or anything. We were . in . we were like Indians... But we weren't Indians.')

/s/##C

HA: *too mi tía mi* ['tios] *too la familia hablaba ehpañol.*
('All my aunts, my uncles, all the family spoke Spanish.')

Ø ##

LG: *¿La escuela era en inglés o en español?*
('School was in English or in Spanish?')

ER: [na ɛn iŋ'gle]
('Nope, in English')

Example 1. Selected Examples of /s/ Variation in Fluent *isleño* Spanish

/s/#C

JG: *Por un día* [ɛs'taβa] *en la casa de Vigía en la mesa pa comesa...*
('Well, one day I was at Virgie's house at the table to eat...')

/h/##C

DR: [loh] *cabelloh, ¿no? Loh cabelloh*
('Hair, right? Hair')

Ø ##

JG: ¿Cinco ['pweblal?
('Five towns?')

Example 2. Selected Examples of /s/ Variaton in Semispeaker *isleño* Spanish

Table 1 compares the /s/ variation in fluent vs. semispeaker *isleño* Spanish syllable-finally, word-finally, and utterance-finally.

	/s/#C			/s/##C			/s/##	
	[s]	[h]	Ø	[s]	[h]	Ø	[s]	[h] Ø
Interview Style								
Fluent *Isleño*	24	63	13	22	28	50	17	9 74
Semispkr *Isleño*	64	36	0	51	11	37	38	4 58
Casual Style								
Fluent *Isleño*	17	63	20	21	24	55	9	9 82
Semispkr *Isleño*	14	86	0	0	33	67	0	14 86

Table 1. /s/ Variation in *Isleño* Spanish (in %)

In interviews, the two groups differ in /s/ variation: semispeakers retain [s] in all phonological environments, while fluent speakers prefer de-occlusion syllable-finally or deletion word- and utterance-finally. In group conversations in casual style, however, the behavior of /s/ in semispeaker speech parallels that of fluent speakers, differing only in the higher degree of de-occlusion and deletion. Both fluent and semispeakers aspirate /s/ predominantly in syllable-final contexts, and deleted /s/ in word- and utterance-final contexts. While the rates of /s/ variation are not identical for fluent and semispeakers, a pattern emerges: in interviews with the outgroup researcher, the semispeakers retained /s/ more frequently than fluent speakers; but in group conversations the semispeakers aspirated or deleted /s/ more frequently than the fluent speakers. This 'crossover ' pattern is evident. What is the source of this pattern?

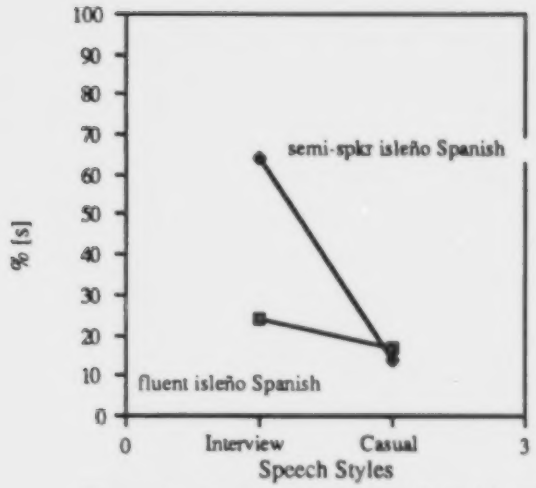

Figure 1. Comparison of [s] Syllable-Finally

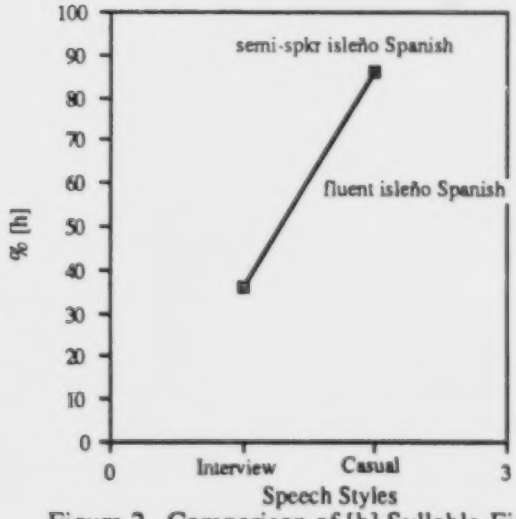

Figure 2. Comparison of [h] Syllable-Finally

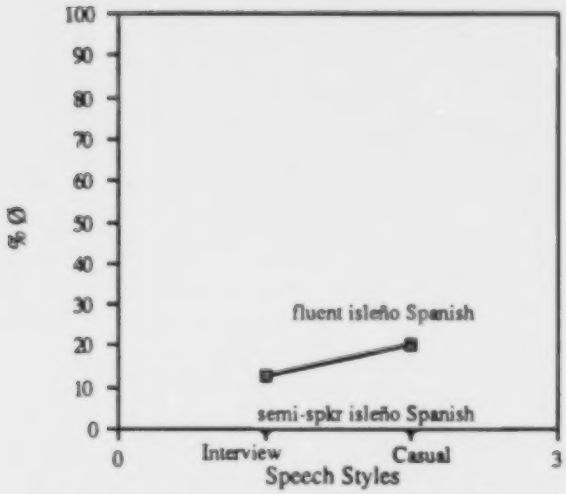

Figure 3. Comparison of Ø Syllable-Finally

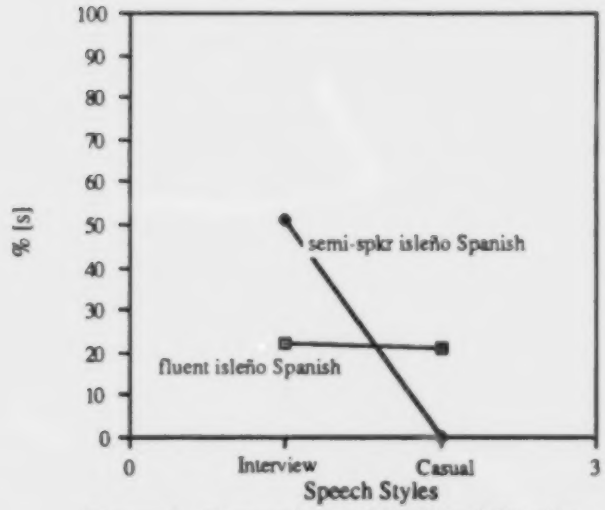

Figure 4. Comparison of [s] Word-Finally

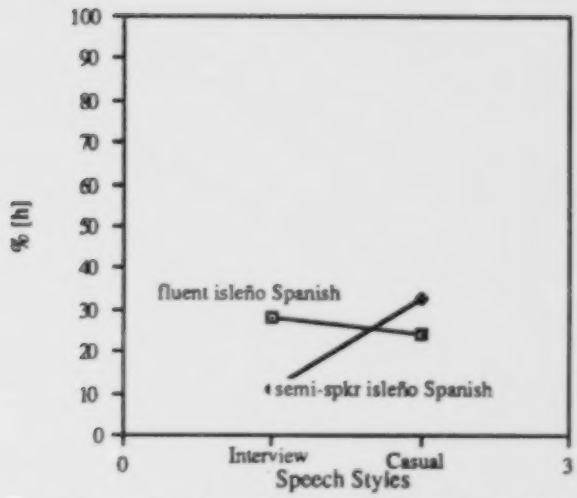

Figure 5. Comparison of [h] Word-Finally

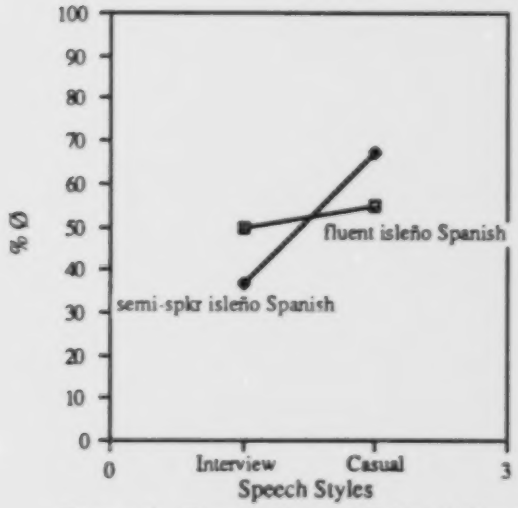

Figure 6. Comparison of Ø Word-Finally

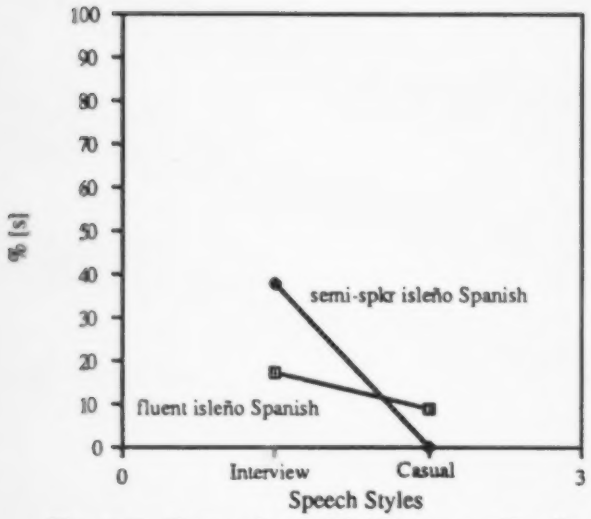

Figure 7. Comparison of [s] Utterance-Finally

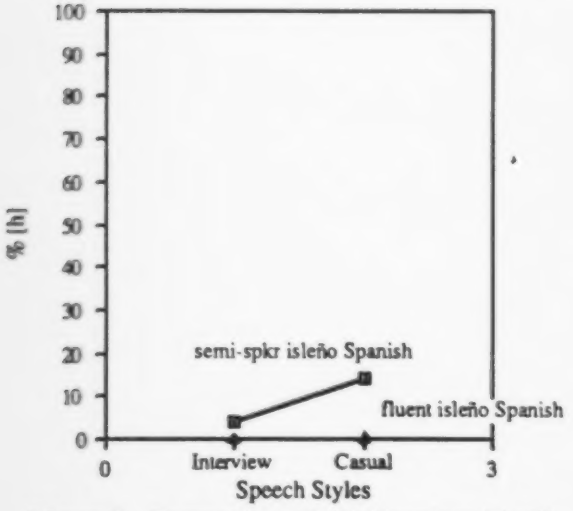

Figure 8. Comparison of [h] Utterance-Finally

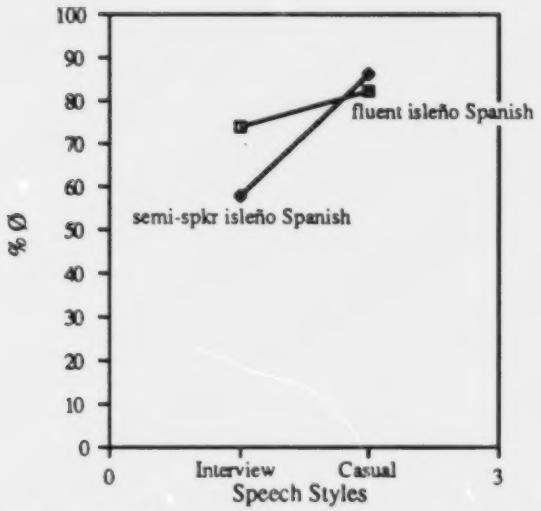

Figure 9. Comparison of Ø Utterance-Finally

Rather than simply being 'wrong' or 'inconsistent', the variation by *isleño* semispeakers can be regarded as a type of speech accommodation called 'upward convergence' (Giles and Powesland 1975: 174) expressing social integration and identification.

Speech accommodation is a model of linguistic variation which focuses on an individual in order to 'note changes in his speech in different settings and situations with different conversants' (Fischer 1958: 54). Giles and Powesland (1975: 155) call this type of research 'the interpersonal aspects of speech diversity.'

The central tenet of speech accommodation is that 'during social interaction, participants are motivated to adjust (or to accommodate) their speech styles as a means of gaining one or more of the following goals: evoking listeners' social approval, attaining communicational efficiency between interactants, and maintaining speakers' positive social identifications' (Thakerar, Giles, and Cheshire 1982: 207), broadly categorized by Coupland (1985: 156) as identity marking and interactional management functions. Thus, the rise of /s/ deletion and de-occlusion in both fluent speakers and semispeakers casual speech when within the ethnic enclave may be regarded as a means of expressing social integration and identification. This process is called 'convergence': 'a linguistic strategy whereby individuals adapt to each other's speech by means of a wide range of linguistic features' (Thakerar, Giles, and Cheshire 1982: 207). Fluent speakers are accorded prestige for preserving the culture's oral traditions (Hill 1978: 66) and in group interactions control conversational flow and turn-taking. The social norms of the *isleño* community influence less fluent speakers to maintain a more passive interactional role than more fluent speakers, functioning as an audience and chorus to emphasize and echo conversational points. By listening to and repeating fluent *isleño* speech, semispeakers are motivated towards integration and solidarity by

varying their pronunciation of /s/ to resemble the perceived behavior of /s/ in the speech of fluent speakers who are identified as prestigious. This variation is not identical to fluent speakers because semispeakers have limited opportunities in these group conversations in which to maintain or improve their proficiency in the ethnic mother tongue, rendering their competence in /s/ variation imperfect. In contrast, upward convergence does not occur in interviewers with the researcher, who, as an outsider, has no prestige status and whose dialect does not match *isleño* Spanish.

It is likely that while semispeakers may accommodate to the interviewer's speech pattern as part of 'a general tendency for people to converge towards others in many social situations' (Thakerar, Giles, and Cheshire 1982: 209), their accommodation is greater in the social network situation with which they identify most strongly. Trudgill (1981: 224) determines that often an interviewer will accommodate more to the informant than vice versa. Says Thakerar, Giles, and Cheshire (1982: 210), 'convergence may be best considered as a reflection of an individual's desire for social approval.' From these data we will conclude that in casual style semispeakers accommodate to the group norm more dramatically than to the interviewer in interview style. The semispeakers of this study are politically active *isleños*, along with the balanced bilinguals, and it is entirely likely that they would wish to ally themselves with these other group members in solidarity, and consequently manipulate the variables in their speech which they recognize to be markers of ethnolinguistic identity to be more like that of their social network cohorts. By increasing the percentage of de-occlusion and deletion of /s/ in their speech (the only phonological variable in which this is the case), semispeakers seek to reinforce their solidarity with the group even though their self-reported fluency is limited. Edwards (1985: 152) asserts that convergence 'varies in magnitude according to the extent of the available linguistic repetoire...' In this case, semispeakers are able to manipulate their pronunciation of /s/ to converge with the group norm. Important lexical items like *isla* [ihla] and *pez* [pɛh] are examples of marked items which always carry de-occlusion or deletion.

The pattern of /s/ deletion in semispeaker speech is not simply hypercorrection, because the term hypercorrection implies that the form produced is incorrect. No example has been found of /s/ variants being produced in the wrong environments or in the wrong situations. Therefore, we will not dwell on the notion that semispeaker /s/ variation is a simple case of error.

Several recordings of semispeakers talking among themselves reveal that English is the primary language, but when *isleño* Spanish is used, it is mostly for ethnically-oriented lexical items. Preliminary findings indicate less /s/ variation on the whole than with fluent speakers, reinforcing the notion of upward convergence.

The convergence of semispeakers' speech to that of fluent speakers' speech indicates that /s/ de-occlusion and deletion is a linguistic factor which the *isleños* recognize as a marker of their dialect. 'Since the desire for social approval is assumed to be at the heart of accomodation ' (Giles and Powesland 1975: 159), the semispeakers more often aspirate and delete /s/ when within the social network than when outside.

The fact that variables of /s/ are chosen to represent this desire for ethnic identification stems from the assumption that 'every individual possesses a speech repetoire from which he selects speech forms according to the nature of situational constraint' (Giles and Powesland 1975: 168). Thus, both willingness and ability enter into accommodation. The salience of /s/ as a productive morpheme may draw attention to its variable use as a linguistic marker (Chambers and Trudgill 1980: 84). Recall Terrell's (1982) notion that redundancy in surface structure correlates with /s/ deletion; semispeakers are able to perceive /s/ variation because of its frequency and can produce some form of /s/ variation with simple linguistic structures. Whereas subtle pronunciation differences are not recognized by informants (Buck 1968: 186), semispeakers of *isleño* Spanish are able to perceive the variation of /s/ in the speech of fluent speakers and vary their pronunciation accordingly. Given their willingness to conform to group norms but their limited proficiency in Spanish, these semispeakers vary /s/ as their only linguistic strategy of speech accommodation in order to gain approval and solidarity with their ethnic group.

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TWO CAUSATIVE CONSTRUCTIONS IN KOREAN

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Abstract: Two types of causative constructions in Korean behave differently both syntactically and semantically. This paper presents the syntactic differences between syntactic causative constructions and morphological causative constructions in terms of merger process of argument structures, and the Case assignment in the two constructions in terms of Case transmission mechanism.

There are two types of causative constructions in Korean. One is a syntactic or periphrastic causative construction which is formed by adding a causative verb to the root verb. The other is a morphological causative construction which is built up by attaching a causative morpheme to the root verb. These two constructions are different from each other in many ways.

In this article, I will propose that the differences between syntactic and morphological causative constructions in Korean are due to the different argument structures of the complex verbs in the two constructions, mainly focusing on syntactic differences. In syntactic causatives, the argument structure of a root verb and that of a causative verb are partially collapsed into one. In morphological causatives, on the other hand, the argument structure of a root verb and that of a causative verb are completely collapsed into one. Therefore, syntactic causative constructions express two-event causative situations and can have biclausal properties, whereas morphological causative constructions express one-event situations and can only have monoclausal properties.

And then I will show how Case assignment is made in the two different causative constructions. Baker(1988)'s approach and Rosen(1992)'s approach will be compared. Baker's approach is characterized by "Verb Incorporation" and "The Government Transparency Corollary". Rosen's approach is characterized by "Case transmission mechanism".

This article will be organized as follows. First, the differences between the two causative constructions will be introduced. The first four are concerned with syntactic

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differences and the latter three are concerned with semantic differences. Secondly, the process of causativization will be dealt with in terms of argument structure merger. Thirdly, the Case assignment mechanisms will be examined. Finally, some concluding remarks will be made.

I. Differences between the Two Causative Constructions in Korean

The two causative constructions in Korean show differences in the following aspects.

1. Time & Place Adverbial Modification

The two causative constructions show differences in interpretation when they contain time or place adverbials.

(1) a. John-eun Bill-eul ilyoil-e cukke-ha-etta.
John-TM Bill-AM Sunday-on die-make-PAST
'John caused Bill to die on Sunday.'
-Syntactic causative-

b. John-eun Bill-eul ilyoil-e cuk-i-eotta.
John-TM Bill-AM Sunday-on die-cause-PAST
'John killed Bill on Sunday.'
-Morphological causative-

N.B. AM: Accusative Marker
DM: Dative Marker
NM: Nominative Marker
TM: Topic Marker
PAST: Past tense & Declarative Marker

(2) a. John-eun Bill-eul keu pang-eseo cukke-ha-etta.
John-TM Bill-AM the room-in die-make-PAST
'John caused Bill to die in the room.'
-Syntactic causative-

b. John-eun Bill-eul keu pang-eseo cuk-i-eotta.
John-TM Bill-AM the room-in die-cause-PAST
'John killed Bill in the room.'
-Morphological causative-

As Shibatani(1976:15) points out, (1a) and (2a) are ambiguous

between (a) both the causing event and the caused event occurred on 'Sunday' or 'in the room', and (b) only the caused event, i.e., 'Bill's dying' occurred on 'Sunday' or 'in the room'. Sentences (1b) and (2b), on the other hand, are not ambiguous. They only state that whole causative situations occurred on 'Sunday' or 'in the room'.

2. Reflexivization

In a syntactic causative construction, the causee as well as the subject of a matrix clause can function as an antecedent for an anaphor, while in a morphological causative construction, only the subject of a matrix clause can function as an antecedent.

(3) a. John$_i$-eun Mary$_j$-eke caki$_{i/j}$ cip-eseo chaek-eul il-keha-etta.
John -TM Mary -DM self house-in book-AM read-make-PAST
'John made Mary read books in his/her house.'
-Syntactic causative-

b. John$_i$-eun Mary$_j$-eke caki$_{i/*j}$ cip-eseo chaek-eul ilk-hi-eotta.
John -TM Mary -DM self house-in book-AM read-cause-PAST
'John made Mary read books in his house.'
-Morphological causative-

In (3a), caki is correferenced with the matrix subject John or the causee Mary, while in (3b), caki can only be correferenced with the matrix subject John. This correference shows that a syntactic causative construction is biclausal in that the causee Mary in a syntactic causative also functions as a subject, if we accept Yang(1983:184)'s argument that Korean caki like Japanese reflexive zibun has a subject-control property meaning that it takes a subject as its antecedent. Meahwhile, a morphological causative construction is monoclausal in that only the matrix subject John functions as a subject.

3. Conjoined Proform

In a syntactic causative construction, the causee as well as the subject of a matrix clause can be used in an adjoined do-so formation. In contrast, only the matrix subject of a morphological causative construction can be used in a do-so proform which is conjoined to the causative construction.

(4) a. John-eun Mary-leul cukke-ha-etta, keureonde {keu / keunyeo} -ka
John-TM Mary-AM die-make-PAST and {he / she} -NM

keureoke haettaneun keot-i na-leul nollakehaetta.
so did that-NM I-AM surprised

'John caused Mary to die, and it surprised me that {he did so.' / she did so.}
-Syntactic causative-

b. John-eun Mary-leul cuk-i-eotta, keureonde {keu / keunyeo} -ka
John-TM Mary-AM die-cause-PAST and {he / she} -NM

keureoke haettaneun keot-i na-leul nollakehaetta.
so did that-NM I-AM surprised

'John killed Mary, and it surprised me that { he did so.' / *she did so.}
-Morphological causative-

As Fordor(1970:431) notices, cukkehata 'cause to die' in (4a) provides two antecedents, x causes y to die and y dies, for the do-so rule. Cukita 'kill' in (4b), on the other hand, provides only one antecedent x kills y.

4. Negation

The two causative constructions show a difference in the occurrence of a negative element.

(5) a. John-eun Mary-eke chaek-eul ilci-an ke-ha-etta.
John-TM Mary-DM book-AM read-not-make-PAST
'John made Mary not read a book.'
-Syntactic causative-

b.*John-eun Mary-eke chaek-eul ilci-an-hi-eotta.
John-TM Mary-DM book-AM read-not-cause-PAST
'John made Mary not read a book.'
-Morphological causative-

In a syntactic causative construction (5a), a negative element an 'not' can occur between the root verb and the causative verb. In a morphological causative construction (5b), an 'not' is not allowed in that position.

5. Cooccurrence with Certain Adverbs or Predicates

The causee in a syntactic causative construction in Korean can occur with an adverb like seuseuro 'voluntarily', while the causee in a morphological causative construction cannot.

(6) a. Na-neun keu ai-leul seuseuro keotke-ha-etta.
I -TM the child-AM voluntarily walk-make-PAST
'I made the child walk voluntarily.'
-Syntactic causative-

b.*Na-neun keu ai-leul seuseuro keol-li-eotta.
I -TM the child-AM voluntarily walk-cause-PAST
'I made the child walk voluntarily.'
-Morphological causative-

Zubizarreta(1985:248) argues that adverbs like 'voluntarily' can only modify agentive verbs. That can be interpreted as meaning that only arguments whose θ-role is AGENT can occur with adverbs like 'voluntarily'. Therefore, the reason why seuseuro 'voluntarily' can occur in (6a), but not in (6b) is that only the causee ai 'child' in (6a) has the AGENT θ-role.

Second, the causee in a morphological causative construction cannot occur with a predicate like hwiparameul pulmyeonseo 'whistling', which means the causee cannot be correlated with such a predicate as requires an agent to associate with.

(7)a.Na-neun [hwiparam-eul pulmyeonseo$_i$] keu ai$_i$-leul keotke-ha-etta.
I -TM whistling the child-AM walk-make-PAST
'I made the child walk, whistling.'
-Syntactic causative-

b.*Na-neun [hwiparam-eul pulmyeonseo$_i$] keu ai$_i$-leul keol-li-eotta.
I -TM whistling the child-AM walk-cause-PAST
'I made the child walk, whistling.'
-Morphological causative-

'Whistle' is a predicate which takes one AGENT argument. The structure of the bracketed phrase is [PRO whistling], in which PRO is controlled by an AGENT argument. 'Whistling' can occur with the causee ai 'child' in (7a), but not in (7b) since only the causee in a syntactic causative construction like (7a) has an AGENT θ-role.

As was seen above, certain adverbs or predicates which require arguments with AGENT θ-roles can only occur in a syntactic causative construction, because the causee of the syntactic causative construction has an AGENT θ-role while the causee of the morphological one does not.

6. Entailment of the Action Denoted by the Root Verb

A syntactic causative construction does not necessarily imply the achievement of the action of the root verb, while a morphological causative construction does.

(8) a. Na-neun keu ai-leul keotke-ha-etta keuleona keu-neun
I -TM the child-AM walk-made-PAST but he-TM
'I made the child walk but he'

keotci anatta.
walk didn't
'didn't walk.'

-Syntactic causative-

b.*Na-neun keu ai-leul keol-li-eotta keuleona keu-neun
I -TM the child-AM walk-cause-PAST but he-TM
'I made the child walk but he'

keotci anatta.
walk didn't
'didn't walk.'

-Morphological causative-

In (8a), the caused event 'walking' did not occur, while in (8b), the caused event did occur. The unacceptability of (8b) results from the fact that in a morphological causative construction, the caused event never fails to occur and, nevertheless, the occurrence of the caused event is contradicted by the use of keuleona 'but'. This aspect of a morphological causative construction shows that the act of causation entails the action denoted by the embedded verb of the morphological causative construction.

7. Manipulativeness vs. Directiveness

In a syntactic causative construction, the causee should be animate while in a morphological causative construction, the causee can be either animate or unanimate.

(9) a.*Na-neun cim-eul naelike-ha-etta
I -TM package-AM come down-make-PAST
'I caused the package to come down.'
-Syntactic causative-

b. Na-neun cim-eul naeli-eotta
I -TM package-AM bring down-PAST
'I brought the package down.'
-Morphological causative-

According to Shibatani(1976:33-34), the ungrammaticality of (9a) is due to the property of directiveness of the syntactic causativization which requires an animate causee. The morphological causative construction, on the other hand, expresses manipulative causation which does not necessarily require an animate causee as in (9b).

II. The Argument Structures in Two Causative Constructions

Rosen(1990) deals with a causative construction in terms of a 'merger' process. Merger is a process whereby a complete argument structure of a root verb replaces the event argument in a causative verb's argument structure. According to her(1990;22), there are two different types of merger possible: partial and complete, in the causative construction. The difference between partial merger and complete merger is that in partial merger the argument structure of a root verb is not completely collapsed into that of a causative verb, but has internal structure of its own, while in complete merger the argument structure of a root verb is completely collapsed. Therefore, partial merger shows the characteristics of a monoclausal structure and simultaneously a biclausal structure, whereas complete merger only shows those of a monoclausal structure.

Rosen(1990:20-21) illustrates the biclausal characteristics of partial merger, comparing the causative constructions of French and Spanish with those of Italian.

(10) a. French:
*Ces passages ont été faits lire (à/par Jean).
'These passages were made to read (to/by Jean).'

b. Spanish:
*Esos pasajes fueron hechos leer (a/por Juan).
'These passages were made to read (to/by Juan).'

c. Italian:
Quei brani furono fatti leggere (a/da Giovanni).
'These passages were made to read (to/by Giovanni).'

(11) a. French:
J'ai fait se_i raser $Pierre_i$.
'I made Pierre shave himself.'

b. Spanish:
Hice afeitarse_i a $Pedro_i$.
'I made Pedro shave himself.'

c. Italian:
*Mario ha fatto accusarsi_i $Piero_i$.
'Mario made Piero accuse himself.'

As (10a) and (10b) show, passivization across the two verbs is impossible in French and Spanish but it is possible in Italian, as in (10c). Considering that passive is local in nature as Zubizarreta(1985:284) points out, the impossibility of passivization is due to the biclausal property of French and Spanish causative constructions. In French and Spanish, the reflexive clitic can attach to the root verb and bind the embedded subject as in (11a) and (11b) but it is not possible in Italian as in (11c). The possibility of reflexivization indicates that a causative construction in French and Spanish is not a monoclause. Based on Rosen(1990:20-21), the argument structures in the partial merger and in the complete merger can be compared as follows.

(12) a. Partial Merger

V1 ('make') [w (x)]	⟶	V1 V2	[w [y (z)]]
V2 [Y (z)]			

b. Complete Merger

V1 ('make') [w (x)]	⟶	V1 V2	[w (y (z))]
V2 [y (z)]			

The brackets [ ] refer to a complete argument structure, the

domain in which an external argument may exist.
V1 indicates a causative verb or morpheme. And V2 indicates a transitive root verb.

The syntactic differences between the two causative constructions in Korean which are examined in 1-4 of the section I show that the syntactic causative construction in Korean undergoes partial merger, while the morphological causative construction undergoes complete merger. The process of syntactic causativization and the argument structures of a syntactic causative construction can be represented as in (13). This pertains to the complex verb ilkke hata 'make read'.

(13) Partial Merger

hata 'make' [w (x)] ⟶ ilkke hata [w [y (z)]]

ilkta 'read' [y (z)]

On the other hand, (14) is related to the complex verb ilkhita as an example of morphological causativization.

(14) Complete Merger

-hi- 'cause' [w (x)] ⟶ ilkhita [w (y (z))]

ilkta 'read' [y (z)]

III. Case Assignment in Two Causative Constructions

The Case assignment mechanism in a causative construction has been developed in Baker(1988) and Rosen(1990,1992). First of all, their mechanisms show differences in the structure in which Cases are assigned. Baker places the complement of a complex verb under a CP node, while Rosen places it under a VP node.

In this section, I will examine the structures of causative constructions in terms of Case assignment.
First, consider the Case assignment in a syntactic causative construction, especially in the sentence (15).

(15) John-eun Mary-eke chaek-eul ilkke-ha-etta.
John-TM Mary-DM book-AM read-make-PAST
'John made Mary read a book.'
-Syntactic causative-

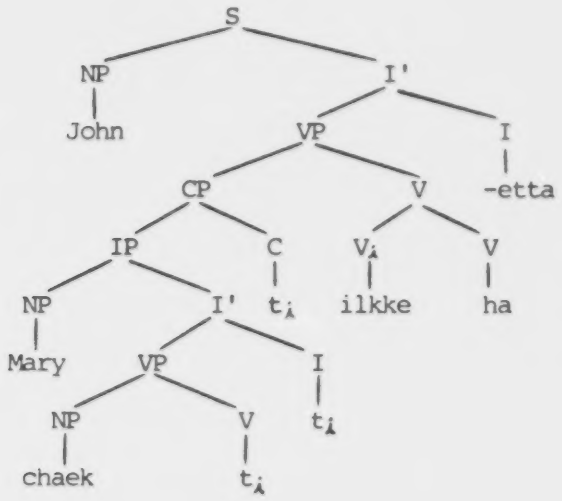
Baker(1988:147) regards causatives as an instance of Verb Incorporation whereby a complex verb derives from two verbs. In Verb Incorporation, Move-α applies to a lexical category V, not a maximal projection VP. Baker(1988:64) introduces the "Government Transparency Corollary" which is crucial in explaining the Case assignment in Verb Incorporation, as in (16).

(16) The Government Transparency Corollary
A lexical category which has an item incorporated into it governs everything which the incorporated item governed in its original structural position.

By (16), a complex verb, a compound of a root verb and its causative verb, will govern all NPs that the items governed in their base positions. Since Case assignment is made under government, the complex verb will assign Cases to the NPs. In this situation, directed strict adjacency will not be a requirement.

According to Baker(1988:185), the S-structure of (15) is as follows.

(17)



By "the Government Transparency Corollary", the complex verb ilkke ha 'make read' governs two NPs Mary, and chaek 'book'. Therefore, it can assign Cases to the two NPs. Because of the Case parameter in Korean, the lower NP chaek is assigned accusative Case and the higher NP Mary is assigned dative Case.

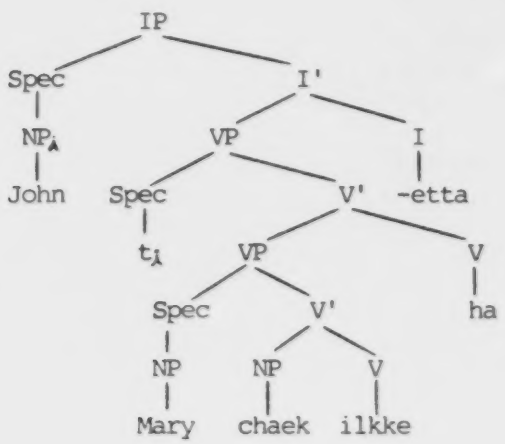
Rosen(1992:96) proposes a "Case Transmission" mechanism for explaining the Case assignment to the causee, that is, the subject argument inside the VP. The Case transmission mechanism can be represented in (18).

(18) Case transmission in the causative construction
The causative verb has a Case to assign, but its VP complement cannot bear Case. Therefore, the Case is transmitted down from the VP to its head V. The V then Case-marks its arguments within its own maximal projection.

Through the mechanism, the subject argument inside the VP is assigned dative Case or accusative Case depending upon the transitivity of the main verb to which the Case feature is transferred down by the causative verb. The analysis assumes that the adjacency requirement does not hold for dative Case.

According to Rosen(1990:178), the S-structure of (15) is as follows. (This representation assumes that the subject is base-generated in the Spec of VP position, and subsequently moves to Spec of IP.)

(19)



In this structure, the verb ilkke 'read' has two Cases to assign. One is the Case of the verb's own, the other is the Case whose feature is transferred to the verb ilkke from the causative verb ha 'make'. The lower NP chaek 'book' which is adjacent to the verb receives accusative Case. The higher NP Mary which is not adjacent to the verb receives dative Case.

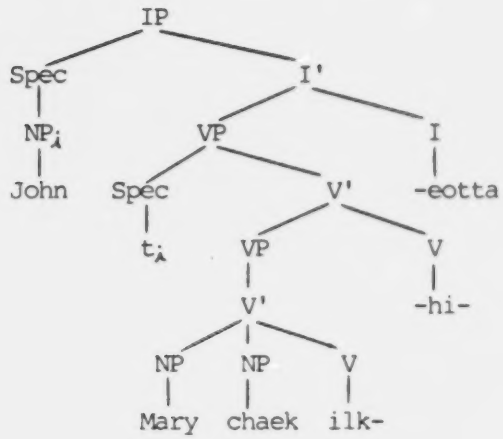
So far, it seems that the two Case assignment mechanisms explain the Case assignment in the syntactic causative construction equally well. However, these two approaches face a difficulty in explaining Case assignment in a morphological causative construction. Let's consider an example (20).

(20) John-eun Mary-eke chek-eul ilk-hi-eotta.
John-TM Mary-DM book-AM read-cause-PAST
'John made Mary read a book.'
-Morphological causative-

Neither Baker nor Rosen deals with the Case assignment in the morphological causative construction under consideration in this article. Because of its specific properties such as complete merger of argument structures and the fact that it is monoclausal, the structure of the morphological causative construction must differ from that of the syntactic causative construction. The complement of the causative verb in a morphological causative construction can not be a VP whose Specifier position is filled with an NP, as in Rosen. If it is regarded as such, it can be a governing category for anaphors since the governing category is a "Complete Functional Complex" in the sense that all grammatical functions compatible with its head are realized in it, according to Chomsky(1986;169). But there is no evidence for that as (3b) in the section I indicates.

The causee NP of a morphological causative construction should be inside VP, of course, but not in Spec of VP. In this analysis, there is no CP or IP, accordingly no C or I. So V-to-C movement in Baker's Verb Incorporation is not available. Rosen's approach, however, can explain the Case assignment in the morphological causative construction, if it is slightly revised to allow the causee NP to be in NP position inside V' as well as in NP position in Spec of VP. The S-structure of (20) can be represented as in (21).

(21)



This structure (21) is different from the structure (19) in that there is no Spec of VP. By the Case transmission mechanism, the first NP Mary which is not adjacent to the verb ilk- 'read' receives dative Case from the verb which gets additional Case feature from the causative element. The second NP chaek 'book' adjacent to the verb receives accusative Case from the verb.

Until now, Case assignment in causative constructions has been dealt with. Between the Case assignment mechanisms of Baker's and Rosen's, Rosen's mechanism is considered more adequate. Rosen's mechanism, however, needs a slight revision. To explain the Case assignment in a morphological causative construction, the causee should be regarded as being located inside VP, as an internal argument.

4. Conclusion

As was seen, two causative constructions in Korean are different from each other in various aspects. They reveal differences in the aspects of time & place adverbial modification, reflexivization, conjoined proform, negation, cooccurrence with certain adverbs or predicates, entailment of the action denoted by the root verb, and manipulativeness vs. directiveness. The first four aspects are regarded as syntactic ones in that they are mainly related to the distributions of the lexical items or phrases. And the latter three are regarded as semantic ones in that they are mainly concerned with thematic roles of the arguments. The fundamental difference between the two causative constructions is whether the causative construction in question specifies one event or not. A syntactic causative construction specifies two

events, unlike a morphological causative construction.

This difference can be explained by the speculation that the two causative constructions have complex verbs with different argument structures. A syntactic causative construction, as a yield of partial merger, does not necessarily represent one event. In contrast, a morphological causative construction which has undergone complete merger can only represent one event.

As for Case assignment, Rosen(1992)'s mechanism is found to be more adequate than Baker(1988)'s mechanism. In Rosen(1992)'s Case transmission mechanism, the causee is assigned structural Case by the root verb to which Case features of the causative verb are transmitted. But Rosen's approach needs revising in order to explain the Case assignment in a morphological causative construction. Unlike Rosen(1990)'s proposal of the causee NP in Spec of VP, the causee should be analyzed to be in an internal argument position inside VP, in a morphological causative construction in Korean.

NOTES

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CONNOTATIONS OF SURPRISE IN THE CONDITIONALS *TO* AND *TARA* IN JAPANESE: A Review and Synthesis

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Abstract: The two conditionals *to* and *-tara* in Japanese do not carry neutral connotations. This paper offers evidence to support the claim that *-tara* can carry, among other things, a connotation of surprise in reference to specific past events. However, evidence is also offered to show that the conditional *to*, contrary to what is stated in most reference grammars, carries connotations of inevitability even when the sentence refers to a specific sequence of past events.

Introduction

Many scholars studying the Japanese language assert that the two conditionals *to* and *-tara* can carry a connotation of surprise when referring to specific events in the past. For example the Japanese sentence 'mado-o akeru *to* yuki-ga futte ita' has the literal meaning 'when I opened the window, I discovered it was snowing' (McClain 1981:30). However, some scholars feel that its actual meaning is something closer to 'when I opened the window, I was surprised to see that it was snowing.' A similar observation is made about the *-tara* structure. For example, the Japanese sentence 'gakkoo-ni it-*tara*, mada dare-mo kite inakatta' has a literal meaning 'when I went to school, no one had come yet' (Kuno 1973:180). It is thought by many scholars that this construction too carries connotations of surprise as if to say 'when I went to school, I was surprised to find that no one had come yet.' In this paper, I will examine the nature of the *to* and *-tara* conditionals and I will offer evidence to show that the *-tara* conditional does seem to connote surprise in special cases, but the *to* conditional does not connote surprise--indeed the very nature of the *to* conditional prevents it from having this particular meaning.

The Conditional *to* and Surprise

In a conditional expression, *to* is 'a subordinate conjunction which marks a condition that brings about a

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noncontrollable event or state' (Makino and Tsutsui 1986:480). In addition, this noncontrollable event or state must be a habitual, natural, inevitable, or immediate consequence of the antecedent sentence which precedes *to* (Buechler 1983:8-9). In terms of grammatical restrictions, the predicate of the consequent clause cannot be a form which expresses a command, a request, a suggestion, an invitation, or a volition (Makino and Tsutsui 1986:481-82). This is due to the fact that the consequent sentence must be objective and non-speaker oriented (Hinds and Tawa 1975-76:9). Finally, S_2 takes place after S_1 is completed (Kuno 1973:193). In use *to* has various meanings such as 'when', 'whenever', 'as soon as', or 'if', and the context usually makes the meaning clear. A few examples will suffice to illustrate the normal use of the *to* conditional.

(1) Fuyu-ni naru *to* Bahama-ni iku.
'Whenever winter comes, I go to the Bahamas.'

(2) Natsu-ni naru *to* totemo mushiatsui.
'Whenever summer comes, it gets hot and humid.'

(3) KabiN-o otosu *to* kowareru.
'If you drop the vase, it will break.'

(4) Ano hito-ni kiku *to* sugu wakaru.
'If you ask that person, you will find out right away.'

In the above sentences, the conditional *to* does not carry any connotation of surprise. However, Kuno (1973) asserts that there is another use of *to* which refers to specific events in the past in a way such that there is no logical antecedent-consequent relationship between the two clauses, and Kuno adds that there is no particular relationship between this second use of *to* and its normal use in examples 1 through 4 (193-94). And even though there is no logical antecedent-consequent relationship involved between the two clauses in the second use, Kuno asserts that the relationship must be close enough to paraphrase as 'upon S_1's happening (or while S_1 was happening), what do you think happened? S_2 did' (189). The following example from Kuno (1973:188) will illustrate this.

(5) Ie-de nete iru *to* Biru-ga tazunete kita.
'While I was in bed at home, Bill came to

visit.'

Kuno claims that there is a quality of surprise (or at least suspense) in S_1 *to* S_2 in example 5, and this results from the fact that S_2 is told objectively from the speaker's point of view, as if to say 'after S_1 happened, I (the speaker) observed/saw/found S_2.' (190-91). This corresponds with what Martin (1975) has termed an 'observation condition' where S_1 *to* S_2 is in the perfect tense and refers to specific events, and thus takes on the meaning 'upon ...ing, I notice(d) that...' or 'when ..., what was noticed was...' (557). The previous example and the following example from Martin (1975:557) illustrates this meaning.

(6) Ushiro-o miru *to* Nakamura-kuN-ga nikoniko waratte ita.
'When I looked back, I saw Mr. Nakamura smiling.'

Note, however, that S_2 is told objectively in examples 1 through 4 as well, and there is no connotation of surprise whatsoever in those examples--whether or not S_2 is told from the speaker's point of view is irrelevant. Thus Kuno's paraphrase of S_1 *to* S_2 given above to explain surprise fails. It fails because there is no connotation of surprise with the *to* conditional. The very fact that the sentence is told objectively denies any connotation of surprise. In example 5 the speaker is not stating surprise at the visitor by the use of *to*, but rather stating that there was an expectation that a visitor would arrive, which was confirmed by the visit. Similarly, Example 6 is also a confirmation of something which was suspected by the speaker. Thus, the conditional *to* forces a connotation of inevitability even when the relationship between the clauses is not an obvious cause-effect relationship as it is in examples 1 through 4.

Consider an example like the following.

(7) Nichiyoobi-ni naru *to* itsumo ame-ga futta.
'Whenever Sunday came, it always rained.'

There is no known phenomenon which brings rain every week, so the listener may indeed be taken aback by such a statement. Yet this example is perfectly grammatical. It is undoubtedly the acceptability of sentences like this which leave the issue of surprise in the *to* conditional open to debate, but I will show that even a sentence such as example 7 does not connote

surprise.

In referring to Kuno's interpretation of *to*, Hinds and Tawa (1975-76:10) assert that the connotation of surprise or suspense is an unnecessary statement, but they do not explain this comment nor do they explore the issue of surprise. Buechler (1983), in his thesis, comes close to denying outright any connotation of surprise inherent in *to* itself, and it is useful to outline Buechler's thoughts concerning *to*. First of all, Buechler correctly states that in using S_1 *to* S_2, the 'speaker suggests that it is possible to predict that on the occurrence of S_1, S_2 will occur' (14). Examples 1 through 4 above are illustrations of this view of *to*. In addition, Buechler tries to simplify the syntactic considerations of the *to* conditional by stating that *to* merely connects factual or objectively observed events, and thus both the statements and their relationship are factual and logical (14). And so

> when S_1 *to* S_2 refers to a specific sequence of events . . . the relationship between S_1 and S_2 can be stated as fact, since the occurrence of the events in sequence has been observed. The speaker is simply recounting events which he has experienced (15).

He also asserts that

> the connotation of surprise or discovery, if there is such a connotation, derives, not from the use of the pattern S_1 *to* S_2, but from the fact that the relationship between the events referred to in S_1 and S_2 is unexpected [by the listener] (11).

While these observations are generally correct, Buechler does not take them far enough. Regardless of whether or not the listener is aware of the relationship, the speaker is still expressing a logical relationship by choosing the *to* conditional, and so no connotation of surprise is intended; and in fact, if the listener understands the proper use of the *to* conditional, then no connotation of surprise should be detectable. Therefore, while the listener may pause for a moment when hearing a sentence such as example 7 above, the sentence will be taken by a native speaker as an expression of cumulative factual experience which seems to be more or less true, albeit not necessarily the result of natural phenomenon.

Thus, when asked, native speakers of Japanese can detect no connotation of surprise in a *to* conditional sentence. Indeed, when given an 'observation condition' sentence relating a sequence of past events, native speakers generally detected the connotation of inevitability about the events described in the sentence.[4] Two native speakers gave an example of the inevitability of the opening lines of Yasunari Kawabata's novel Yukiguni, which is in the form of S. *to* S. and refers to a specific sequence of past events.

(8) Kokkyoo-no nagai toNneru-o nukeru *to* yukiguni de atta (Kawabata 1968:5).
'The train emerged from the long tunnel at the frontier and was in the snow country.'

This is entirely consistent with the function of *to*. McGloin (1976-77:182) has pointed out that *to* has a tendency to be used in 'generic cases' (rather than in specific instances) because of its air of inevitability. Thus, it normally means 'whenever'. McGloin also points out that *to* can be used in reference to specific events in the future, and when used in this way it has connotations of objective fact (182). Example 4 and the following example illustrate this.

(9) Raishuu iku *to* motto yasuku kaeru.
'If you go next week, you can buy it for less.'

McGloin's discussion of the conditionals is restricted to non-past events, but it would be surprising indeed if in reference to specific past events the *to* conditional was to carry the special meaning of surprise since this meaning is the complete antipode of its regular meaning. In fact the conditional *to* connects an inevitable clause with its antecedent, regardless of the tense of the sentence. The example below further illustrates this point.

(10) SeNsoo-ga sumu *to* doNdoN shiNpo shita.
'When the war ended there was rapid progress.'

Example 9 does not express any degree of surprise. Rather, it expresses two factual events in the past and describes an inevitable relationship between these events. The speaker wishes to express a particular relationship of inevitability between two clauses and

so selects the *to* conditional, and the listener understands this inevitability even if the relationship was not known previously. This is due to the nature of the *to* conditional.

The Conditional *tara* and Surprise

If it is the case that the speaker wishes to suggest surprise at specific past events, then the speaker can use the conditional *-tara* to accomplish this, for *-tara* does not necessarily express an inevitable or obvious relationship between two clauses, although it can often do this. The conditional *-tara* 'indicates an antecedent-subsequent relationship. It is concerned with temporal sequence' (Murayama 1985:119). The following is a typical use of the *-tara* construction, which does not connote surprise.

(11) Juuniji-ni nat-*tara* basu-ga nakunaru.
'The buses stop coming after 12 o'clock.'

There are several syntactic features of the *-tara* conditional which could possibly contribute to a connotation of surprise. The conditional *-tara* is 'a subordinate conjunction which indicates that the action/state expressed by the main clause in a sentence takes place after the action/state expressed by the subordinate clause' (Makino and Tsutsui 1986:452). Note that this is a very different conditional than *to*. 'Unlike *to*, *-tara* implies individual instances and does not imply an inevitable or habitual connection between S_1 and S_2: S_1 occurs and accidentally S_2 follows' (Murayama 1985:119). In addition *-tara* is often used to express a subjective feeling in S_2: either invitation, request, determination, permission, and the like (Murayama 1985:120). This also explains the preference for *-tara* when S_2 is an imperative or an interrogative (McClain 1981:31). Thus, the following is a common way of using the *-tara* conditional.

(12) Tookyoo-ni tsui-*tara* deNwa shite kudasai.
'When you get to Tokyo, please call me.'

Moreover, when using the *-tara* conditional, the speaker is making an original contribution to the discourse in S_2 and thus when the action of S_1 is complete, S_1 is 'speaker-oriented' and generally indicates new information (Hinds and Tawa 1975-76:8). The following example illustrates this.

(13) A: Sotsugyoo shi-*tara* nani-o suru tsumori

desu ka?
'After graduation, what are your plans?'
B: Sotsugyoo shi-*tara* Amerika-de hataraki-tai-to omoimasu.
'After graduation, I want to work in America.'

In addition, *-tara* tends to be used in specific instances rather than in generic cases (McGloin 1976-77:182). These features of the *-tara* conditional could all contribute to a connotation of surprise in S$_2$.

In addition, one grammar reference states that '[w]hen S$_2$ in "S$_1$ *tara* S$_2$" represents a past action, the action cannot be one intentionally taken by the agent after the action or event represented by S$_1$' (Makino and Tsutsui 1986:455). Kuno (1973) asserts the same proposition stating that when the action of S$_1$ *tara* S$_2$ is in the past, then there can be no 'self-controllable timing' between S$_1$ and S$_2$ (181). Buechler (1983) defines this as follows: 'A "self-controllable timing" between two events exists when a single agent controls both events and, therefore, the time lapse between the events' (24). However, Buechler does not agree with Kuno that self-controllable timing is a factor when using *-tara*, but instead explains that the important feature is that S$_2$ be an original contribution to the discourse by the speaker (24-26). Kuno (1973) states that 'the requirement S$_1$ and S$_2$ in S$_1$ *tara* S$_2$ have no self-controllable time sequence is responsible for the peculiar overtone attached to the pattern: namely, S$_2$ normally represents an unexpected or surprising event' (181-82).

Nonetheless, Kuno's explanation of surprise is seriously undermined by Buechler's persuasive evidence indicating that self-controllable timing is not a factor, and in fact Buechler's argument, while undermining one explanation for surprise, lends support for another, more persuasive element which contributes to a connotation of surprise in the *-tara* conditional. It is one of three elements on which I will focus as being the primary contributors to the air of surprise in the *-tara* conditional, but it is best discussed after giving the first element (The features of this conditional given at the beginning of this section above could all possibly contribute to the connotation of surprise, but they are not major factors). The third element involves the actual *-tara* conditional itself and will be discussed along with the noun *toki* in the section which follows this one.

First, it seems that a major cause of surprise in the *-tara* construction is the fact that this conditional is concerned only with temporal sequence, and so one can connect almost any two events with it. Although the relationship may in actuality be cause and effect, inevitability, conditional, and the like, the speaker uses the *-tara* construction to comment on the events in terms of their temporal sequence. The following examples are illustrations of the use of *-tara* to connote surprise.

(14) Uchi-ni kaet-*tara* deNpoo-ga kite ita.
'When I returned home, a telegram had arrived.'

(15) Hikooki-ni not-*tara* Tanaka-saN-ni atta.
'When I boarded the plane, I met Mr. Tanaka.'

(16) Meari-no apaato-ni it-*tara* chuushoku-o gochisoo shite kureta.
'When I went to Mary's apartment, she treated me to lunch.'

In addition, native speakers of Japanese can sense a connotation of surprise occasionally when S_1 *tara* S_2 refers to events in the past. Native speakers could detect surprise in the following example from Buechler (1983:47).

(17) Mado-kara kubi-o dashi-*tara* ame-ga futte ita.
'When I stuck my head out the window, it was raining.'

In Examples 14 through 17, the two events have no particular relationship apart from the fact that one occurred after the other, or the second event was noticed after the completion of the first event, and so the conditional sentence carries an air of surprise about it. Thus, it seems that part of the connotation of surprise is due to the accidental temporal relationship placed between the two events.

But the connotation of surprise cannot exist if the speaker does not intend it, and this is where the insistence by Hinds and Tawa (1975-76), as well as Buechler (1983), that S_2 must be an original contribution to the discourse enters. It is interesting to note that the *-tara* conditional is sometimes interchangeable with the other conditionals. For instance, in example 11 above, *-tara* could be exchanged for *to* without a change in the meaning of the

sentence. And so while it can express the same inevitable or logical relationship as that of the *to* conditional, it can also express surprise when it refers to a sequence of past events. This is explained by the fact that the speaker is choosing information to contribute to the discourse in S_2. The speaker can choose information which proceeds logically from the first clause, or the speaker can present the second clause as something which was surprising, or the speaker can present the relationship in some other light. This concept helps explain part of the connotation of surprise in the following example.

(18) Kuji-kara chuugokugo-no koogi-ni kyoo-wa amari dete konai daroo-to omotte i-*tara*, hotoNdo miNna dete kite ita (Hibbitt and Itasaka 1967:70-71).
'I was thinking that most people would not attend the nine o'clock Chinese class today, but nearly everyone showed up.'

Notice that in this sentence the *-tara* construction is a reversal of reasoning indicating surprise. The use of *-tara* in the above example is meant to convey to the listener the feeling of surprise felt by the speaker on encountering the event which was not expected to occur.

The Use of *toki* in Japanese

Some may still wonder whether it is the case that the conditionals *to* and *-tara* themselves carry their peculiar meanings--inevitability in the case of *to* and surprise in the case of *-tara*--or whether they take on their meanings because of the nature of the entire sentence. I will offer support for the former and will use the noun *toki* as evidence. Both the conditional *to* and the conditional *-tara* necessarily take the meaning of 'when' in cases where they are used to refer to specific past events which actually occurred (in contrast, a counterfactual statement can refer to specific past events that did not occur and thus take the meaning 'if'). However, if the speaker wishes to make a 'when' statement in Japanese in reference to past events and make certain that the sentence is completely neutral in connotation, then the speaker has the option of using S_1 *toki* S_2. Some examples will suffice to illustrate this.

(19) Baa-ni hait-*tara* Taroo-ga sake-o noNde ita.
'On entering the bar, I discovered that Taroo was drinking sake.'

(20) Baa-ni haitta *toki* Taroo-ga sake-o noNde ita.
'When I entered the bar, Taroo was drinking sake.'

Although the two examples above based on sentences from Kuno (1973:190) can be translated identically, doing so would not capture the true flavor of the utterances. The first indicates surprise, while the second is neutral. The following contrasts *toki* and *to*.

(21) Soto-ni deru *to* ame-ga futte ita.
'As expected, when I went outside, it was raining.'

(22) Soto-ni deta *toki* ame-ga futte ita.
'When I went outside, it was raining.'

These two examples from Kuno (1973:190) could also be translated identically, but the real meaning would be lost by doing so. When the speaker's intention is merely to recount two events which happened to co-occur, then *toki* can be chosen. If the speaker desires to inject personal feelings on the events into the utterance, then a conditional can be chosen.

In the discussion of the *-tara* conditional above, I pointed out two major elements which seem to contribute to the connotation of surprise in the *-tara* construction. The evidence offered with the use of *toki* supports the argument that at least part of the connotation of surprise is carried by the conditional itself as an expression of the speaker's feelings regarding the events of S_1 and S_2.

Summary and Conclusion

The point about *to* and *-tara* can be shown clearly in the following examples.

(23) Meari-ga kuru *to* Jon-ga kaetta.
'Naturally, when Mary came, John left.'

(24) Meari-ga ki-*tara* Jon-ga kaetta.
'Surprisingly, when Mary came, John left.'

When these two Japanese sentences from Kuno (1973:192) were given to native Japanese speakers, the first was thought to be inevitable, whereas the second was generally thought to convey surprise. I have changed Kuno's translations of these sentences to reflect this point. However, Example 24 could also convey

inevitability given a context which would support that connotation, thus showing that *-tara*, unlike *to* is not restricted to a single connotation, but rather depends on the context and the speaker's intent, as well as the perception of the listener.

In conclusion, the conditional *to* is used to connect a logical, non-controllable, objective consequent with its antecedent. The evidence offered in this paper supports the assertion that the *to* construction still carries this same connotation of inevitability when referring to a specific sequence of past events. On the other hand, the *-tara* conditional can often be used to connote surprise, and it can be used in this way because there are few restrictions upon its use. It connects two clauses, but they need have no particular relationship apart from the fact that the second clause happened to occur after the first clause. Thus, if the relationship between the events of the two clauses is an unexpected one, then the construction can express surprise, although the *-tara* conditional can only carry this connotation in describing past events. In addition, since the speaker is making an original contribution, then the speaker can choose to express surprise with the *-tara* conditional. Finally, *toki* was used to offer evidence showing that the peculiar overtones of the two types of conditional sentences are carried at least in part by the conditional conjunctions themselves, and the speaker purposely chooses one if a particular connotation is intended for the utterance.

NOTES

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in Japanese, and I would like to thank her for the initial explanation of surprise in the *tara* conditional. Any errors, however, are my own responsibility. The Hepburn system for romanized Japanese is used throughout with a few exceptions. Syllabic *n* is always written *N* (i.e. shiNbuN). Long vowels are doubled (i.e. oneesaN, sotsugyoo). I have often used the abbreviations 'S$_1$' and 'S$_2$' to refer to the first and second clauses respectively in a conditional expression.

[2] There are four conditionals in Japanese--*to*, -*tara*, -*ba*, and *nara*. This paper deals only with the first two. However, there does not appear to be any connotations of surprise or inevitability in the other two conditionals.

[3] I am indebted to the several native Japanese speakers who kindly answered my questions about the conditionals.

[4] See Buechler (1983), especially pages 24-26, for more on this.

[5] Again, thanks are due to the native Japanese speakers who kindly answered my questions and gave their views on the conditionals.

[6] *Toki* is a Japanese noun which literally means 'time'. Thus, when it is modified by an expression, the entire clause has the meaning '(at) the time of ...' or 'when ...'.

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LANGUAGE AS FLUID:
A Description of The Conduit Metaphor in Japanese

Masuhiro Nomura

Abstract: The aim of the present paper is to see how COMMUNICATION is metaphorized in Japanese and to contrast this metaphorization with Reddy's (1979) conduit metaphor. I will claim that there is a strong tendency for Japanese to conceptualize WORD as FLUID and to fuse WORD and MEANING.

1. Introduction

Communication is an abstract domain of experience which can be metaphorized in terms of a more concrete domain of experience. Reddy (1979) is the first detailed analysis of how our language about language is structured in terms of metaphor. He argued that English expressions of COMMUNICATION are based on what he calls "the conduit metaphor", which consists of the following four components (ibid: 290):

(1)a. language functions like a conduit, transferring thoughts bodily from one person to another:
  e.g. Try to get your thoughts across better.
  None of Mary's feelings came through to me with any clarity.

b. in writing and speaking, people insert their thoughts and feelings in the words:
  e.g. Try to pack more thoughts into fewer words.
  Don't force your meanings into the wrong words.

c. words accomplish the transfer by containing the thoughts or feelings and conveying them to others:
  e.g. That thought is in practically every other word.
  The sentence was filled with emotion.

d. in listening or reading, people extract the thoughts and feelings once again from the words:
  e.g. Can you actually extract coherent ideas from that prose?
  I don't get any feelings of anger out of his words.

In (1a), the object of the act of transferring is "thoughts" or "feelings". Since words are containers for thoughts and feelings, as (1b,c,d) suggest, it is

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possible for "words" to be objects of the act of transferring (though Reddy himself did not give examples of this type):

(2)a. accept one's word for it.
b. He could scarcely catch the words.
c. We exchanged a few words.
d. He flung words at me.
e. give him a word of greeting/advice/warning
f. I hear that words passed between them.
g. He sent word that ---
h. You should never take his words just as they are.
i. toss a word to---

The expressions in (2) suggest that WORD is conceptualized as an <individuum> that people can give and take.

The aim of the present paper is to consider how Japanese exploits metaphors to talk about COMMUNICATION, and to contrast this with Reddy's "conduit metaphor". I will argue that there is a strong tendency for Japanese to conceptualize WORD as <fluid> and COMMUNICATION as a movement of <fluid> from a speaker toward a hearer.

2. Methodological Assumptions

I will make the following methodological assumptions:

(3) In some languages, there exists a set of predicates that specifically express the movement/state of <fluid>: e.g. 'leak', 'flow', 'spill', 'shower', 'pour', 'douse', 'soak', etc. [1]
(4) If such a predicate (henceforth "fluid predicate") is used in a metaphorical sense (henceforth "fluid metaphor"), its relevant argument is being conceptualized as <fluid> or indiscrete mass. [2]

English, which unlike Japanese has overt count/mass and singular/plural distinctions, provides indirect support for the assumption (4). [3] The following examples suggest that a fluid metaphor can occur with either a plural noun or a mass noun as its relevant argument:

(5)a. Crowds/People flow down the street.
b. *A boy flows down the street.

(6)a. A lot of good ideas welled up while reading this book.
b. ?A good idea welled up while reading this book.
c. Anger/Joy welled up.

In light of the above assumptions, compare, as an illustration, the following pair of Japanese expressions which have roughly the same meaning, "snap at someone":

(7)a. hagesii kotoba-o butukeru
biting word-ACC fling
b. hagesii kotoba-o abiseru
biting word-ACC shower

Since Japanese lacks the singular/plural and the count/mass distinctions as grammatical categories, the noun "kotoba" has exactly the same form in (7a) and (7b). The noun "kotoba" in (7a), however, can be considered to reflect <individuum>, because the verb "butukeru"(fling) typically takes an <individuum> (e.g., "isi"(stone)) as its direct object. The same noun "kotoba" in (7b), on the other hand, can be considered to reflect the conceptualization of <fluid>, because (7b) involves a fluid predicate "abiseru"(shower) being used in a metaphorical sense.

In the next section, based on this methodology, I will analyze Japanese conventional expressions of communication and demonstrate the ubiquity of fluid metaphors in conceptualizing COMMUNICATION in Japanese.

3. The Conduit Metaphor in Japanese

Reddy's conduit metaphor can be divided into two parts, (1a) and (1b-d). The former focuses on the movement of WORD, and the latter focuses on WORD as a container. In this section, I will discuss the movement aspect of the conduit metaphor and the container aspect of the conduit metaphor in this order.

Movement of WORD [4]

I will examine fluid predicates one by one to see how they are used to metaphorize the movement aspect of COMMUNICATION.

(A) morasu/moreru (leak(v.t.)/leak(v.i.))

The transitive verb "morasu"(leak) typically takes a <fluid> direct object:

(8) mizu/kuuki-o morasu
water/air-ACC leak
"leak water/air"

Hence the following example indicates that WORD is conceptualized as <fluid> and the speaker as a container for <fluid>:

(9) kotoba-o morasu
word-ACC leak
"utter words in spite of oneself"

Furthermore, the verb "morasu" has developed a usage as a speech verb, taking a complementizer "to":

(10) Taro-wa Jiro-ga gan dearu to morasita.
Taro-TOP Jiro-NOM cancer be COMP leaked
"Taro confided that Jiro has cancer".

The verb "morasu" can be combined with "kiku"(hear) and "iu"(say) to form a compound verb meaning "fail to catch/say some words" ("kiki" and "ii" are conjunctive forms of "kiku" and "iu" respectively): [5]

(11) daizina koto-o kiki-morasu
important thing-ACC hear-leak
"miss the important parts"
(12) daizina koto-o ii-morasu
important thing-ACC say-leak
"{forget to mention/let out} an important thing"

The image behind these expressions would be that WORD as <fluid> leaks from the conduit and loses some portion of it when it should flow to the hearer *in toto*. Interestingly, the compound verb "ii-morasu" has two seemingly incompatible interpretations, namely, "forget to mention" and "let out". The latter interpretation seems to be related to the fact that the verb "morasu" itself implies "to say something secretly", as seen in (9).

The intransitive verb "moreru", which is morphologically related to

"morasu", is used to express the situation where one utters words despite oneself:

(13) human-no kotoba-ga kare-no kuti kara moreru
complaint-GEN word-NOM he-GEN mouth from leak
"Words of complaint escape his lips"

The verb "moreru" combines with "kiku"(hear) to make up a compound verb:

(14) Taro-ga kekkonsuru hanasi-o more-kiku.
Taro-NOM get married rumor-ACC leak-hear
"(I) hear the rumor that Taro will get married"

The image behind this combination would presumably be that one hears WORD as <fluid> leaking from some source of information.

(B) nagasu (pour, let flow)

The transitive verb "nagasu"(pour, let flow) typically takes a <fluid> argument as its direct object:[6]

(15) mizu/ti/namida-o nagasu
water/blood/tear-ACC pour
"pour water/bleed/shed tears"

This verb "nagasu" combines with the receptive verbs "kiku"(hear) and "yomu"(read) to make up a compound verb meaning "listen/read inattentively":

(16) Taro-wa Jiro-no kotoba-o kiki-nagasu
Taro-TOP Jiro-GEN word-ACC hear-let flow
"Taro lets Jiro's words go in one ear and out the other"
(17) hon-o yomi-nagasu
book-ACC read-let flow
"read a book inattentively, skim through a book"

I surmise that the image behind these expressions is that the listener/reader lets WORD "flow", without stopping and accepting it. [7]

When the verb "nagasu" combines with the productive verb "kaku"(write), the compound verb "kaki-nagasu" means "write smoothly, dash off something".

This meaning is motivated by the image that one writes smoothly and quickly as if pouring water. For some unknown reason, the combination "ii-nagasu"(say-let flow) is not commonly used.

(C) kobosu (spill)

The verb "kobosu"(spill) typically takes a <fluid> and occasionally a mass-like <solid> direct object:

(18) mizu/gohan/*enpitu-o kobosu
water/rice/*pencil-ACC spill
"spill water/rice/*pencil(s)"

This verb can metaphorically be used with a noun meaning "complaint":

(19) human-no kotoba-o kobosu
complaint-GEN word-ACC spill
"to complain"

Furthermore, the verb has developed a usage as a speech verb:

(20) Taro-wa Jiro-ga urusai to kobosu
Taro-TOP Jiro-NOM noisy COMP spill
"Taro complains that Jiro is noisy"

The verb "kobosu" implies that one spills something which should have been contained. The reason that "kobosu" is normally associated with the notion of "complaint" might be that "complaint" is understood in Japanese as something to be contained and not let out.

(D) siboru (squeeze, wring)

The verb "siboru"(squeeze) takes as its direct object either a <fluid> or an object containing a <fluid>:

(21)a. suponzi-o siboru
sponge-ACC squeeze
"squeeze the sponge"
b. mizu-o (suponzi-kara) siboru
water-ACC (sponge-from) squeeze

"squeese the water (out of the sponge)"

When the verb "dasu"(let out) is added to "siboru", making a compound verb "sibori-dasu", only a <fluid> can be its direct object:

(22)a. *suponzi-o sibori-dasu
sponge-ACC squeeze-out
b. mizu-o sibori-dasu
water-ACC squeeze-out
"squeeze the water out"

Thus, the following expression suggests that WORD is conceptualized as a <fluid>:

(23) kotoba-o sibori-dasu
words-ACC squeeze-out
"force out one's words"

(E) abiseru/abiru (shower/be showered with)

The verbs "abiseru"(shower) and "abiru"(be showered with) typically take a <fluid> direct object:

(24) mizu-o abiseru
water-ACC shower
"pour water on"
(25) mizu-o abiru
water-ACC be showerd with
"pour water over oneself"

When uttering words to the hearer, these two verbs can be used: *

(26) hinan/syoosan-no kotoba-o abiru/abiseru
blame/praise-GEN word-ACC be showered/shower
"be showered with/shower someone with words of blame/praise"
(27) sinratuna kotoba-o abiseru
biting word-ACC shower
"shower someone with biting remarks"

(F) haku (exhale, vomit)

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The verb "haku"(exhale, vomit) can be said to typically take a <fluid> direct object:

(28) iki/ti-o haku
breath/blood-ACC exhale, vomit
"exhale, vomit blood"

The following expressions show that WORD is viewed as <fluid>:

(29)a. hituuma kotoba-o haku
grievous word-ACC vomit, exhale
"utter grievous words"
b. kagekina iken-o haku
radical opinion-ACC vomit, exhale
"express a radical opinion"
c. honne-o haku
real intention-ACC vomit, exhale
"tell one's real intentions"

(G) yodomu (stagnate), nigosu (make (water) turbid)

The verbs "yodomu"(stagnate) and "nigosu"(make (water) turbid) typically take a <fluid> argument:

(30) mizu/kuuki-ga yodomu
water/air-NOM stagnate
"The water/air stagnates"
(31) mizu/kuuki-o nigosu
water/air-ACC make turbid
"make water turbid/make air foul"

WORD as <fluid> moves from a speaker toward a hearer, but it is not always the case that WORD moves smoothly: sometimes WORD as <fluid> can stagnate or get turbid, resulting in unsuccessful communication :

(32)a. yodomi-naku hanasu
stagnation-without speak
"speak fluently"
b. ii-yodomu
say-stagnate

"hesitate to say"

(33)a. kotoba-o nigosu
word-ACC make turbid
"speak ambiguously"

b. benzi-o nigosu
answer-ACC make turbid
"give a vague answer"

(H) simiru (soak into), kumu (draw (water))

Lastly, let us consider some expressions used from the hearer's viewpoint. The verbs "simiru"(soak into) and "kumu"(draw (water)) typically take a <fluid> argument:

(34) mizu-ga nuno-ni simiru
water-NOM cloth-DAT soak
"The water soaks the cloth"

(35) mizu-o ido kara kumu
water-ACC well from draw
"draw water from the well"

When WORD as <fluid> issued from the speaker is not accepted by the hearer, the compound verb "kiki-nagasu"(listen-flow) is used, as we saw in (16). When it is accepted, WORD as <fluid> "soaks into" the hearer:

(36) kanozyo-no kotoba-ga kokoro-ni simiru
she-GEN word-NOM heart-DAT soak into
"Her words sink into my heart"

When the hearer wants to take in WORD as <fluid> of his/her own accord, the verb "kumu"(draw (water)) is used: [9]

(37) kotoba-o kumu
word-ACC draw (water)
"take someone's words into consideration"

Container aspect of WORD

Compared with the variety of English expressions Reddy (1979) gave for the WORD AS A CONTAINER part of the conduit metaphor (which corresponds to (1b)-

(1d)), there are only a few corresponding expressions in Japanese that concern the relationship between WORD and MEANING (I assume that MEANING corresponds to "thoughts/feelings" in Reddy's formulations). Here are some examples:

(38) kotoba-ni imi-o komeru
word-DAT meaning-ACC load
(39) kotoba-ni imi-o takusu
word-DAT meaning-ACC entrust
(40) kotoba-ga imi-o hukumu
word-NOM meaning-ACC contain
(41) kotoba-no imi-o toru
word-GEN meaning-ACC take

It is very odd for Japanese to explicitly code the insertion/extraction aspect of the conduit metaphor:

(42) ??kotoba-ni imi-o ireru/soonyuusuru
word-DAT meaning-ACC put into
(43) ??kotoba kara imi-o toridasu/tekisyutusuru
word from meaning-ACC take out

This seems to indicate that in Japanese, unlike in English, WORD and MEANING are fused, rather than separated. Part of the reason for this might be that in classical Japanese there was a folk model where "kokoro"(heart, meaning) grows into "kotoba"(word)(see Ikegami 1988, 1989).[10] In other words, heart, meaning, and word were considered to form a continuum. On the other hand, if WORD is conceptualized as <fluid> as we saw above, then it follows, by the nature of <fluid>, that it is difficult to have clear-cut container/content separation in WORD. Thus, in this sense, it seems natural that there is no clear separation of WORD and MEANING in Japanese.[11]

4. Some Qualifications

The above analysis of Japanese conventional expressions of communication suggests that WORD tends to be conceptualized as <fluid> and COMMUNICATION as a movement of fluid from a speaker toward a hearer.[12] This contrasts with Reddy's conduit metaphor where WORD is conceptualized as an <individuum> and COMMUNICATION as its movement.

This does not, however, mean that Japanese never construes WORD as an

<individuum> or that English never construes WORD as <fluid>. Human beings can conceptualize the same objective scene in different ways. The fact that Japanese prefers <fluid> and English prefers <individuum> to conceptualize WORD is a matter of tendency.

In fact, it is not uncommon for WORD to be conceptualized as <individuum> in Japanese. The following expressions exemplify this: [13]

(44) kotoba-o okuru/kawasu/kaesu/uketoru
word-ACC send/exchange/return/accept

(45) ii-kaesu/watasu
say-return/give
"retort/order"

(46) hagesii kotoba-o butukeru/nagetukeru
biting word-ACC fling
"snap at (someone)"

(47) kotoba-ga mimi-ni tobikomu/todoku/hairu
word-NOM ear-DAT jump into/reach/enter
"hear"

What is important is that in Japanese the conceptualization of WORD as <fluid> is, at least, no less common than the conceptualization of WORD as <individuum>.

Here are, on the other hand, some English examples where WORD is conceptualized as <fluid>:

(48)a. pour out (a stream of) words
b. Word leaks out from CIA.
c. gush over(about) one's baby
d. a flood of words
e. a rapid flow of speech
f. His verse flows musically. / Her talk flowed on.
g. fluent (< Latin: fluere 'to flow')

It may, however, safely be said that the conceptualization of WORD as <fluid> is much less common in English than in Japanese.

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5. Concluding Remarks

To summarize our discussion, we have seen the following contrast between Japanese and English:

Tendency: Japanese: WORD as <fluid>. Fusion of WORD and MEANING English: WORD as <individuum>. Separation of WORD and MEANING.

As Lakoff and Johnson (1980:Ch.3) correctly point out, metaphor can highlight one aspect of a concept but hide other aspects of the concept. The conduit metaphor is so deeply rooted in English that it is virtually impossible to talk about language without using it.[14] One way of "relativizing" the conduit metaphor is to see how other languages metaphorize WORD and COMMUNICATION, which will hopefully reveal in what respects Reddy's conduit metaphor is universal and in what respects it is language-specific. The present paper is only a small attempt at this.

Finally, I would like to mention a possibility that the distinction between non-fluid metaphor and fluid metaphor might parallel the distinctions between count noun/mass noun and perfective verb/imperfective verbs (cf. Langacker 1987). These distinctions may be the different manifestations of the same cognitive capacity.

NOTES

*This paper is based on my presentations at Nintigengogakukenkyuukai (Cognitive Linguistics Study Group) at University of Tokyo on September 5, 1992 and at UCSD Cognitive Linguistics Workgroup on January 21, 1993. I would like to thank A.Goldberg, Y.Ikegami, S.Kemmer, R.Langacker and an anonymous reviewer of KWPL for their helpful comments on earlier versions of the paper. I am indebted to R.Sheffer for checking my English. Thanks also go to my cohorts at UCSD, especially, Martha, Michael, Kathleen, Sean, and Will for their support. Any remaining inadequacies are, of course, my responsibility alone.

1. By the term <fluid>, I mean both <liquid> and <gas>. Since <liquid> is more basic (in terms of visibility, tangibility, usefulness, etc.) to human experience, I surmise those predicates prototypically take a <liquid> argument, and that this prototype is semantically extended to a <gas> argument. Fluid predicates are sometimes further extended to take a mass-like <solid> argument. Compare the following pair:

(i) suna/*isi-o morasu
sand/stone-ACC leak

2. This assumption is based on Lakoff and Johnson's (1980:6) view of metaphor: "Metaphors as linguistic expressions are possible precisely because there are metaphors in a person's conceptual system." It is perfectly possible, however, that for some people fluid metaphors may be "dead" metaphors which do not evoke the conceptualization of <fluid>.

3. For conceptual basis of the mass/count distinction, see Langacker (1987, 1991:Ch.2).

4. The existence of the "conduit" through which WORD travels is supported by the following expressions:

(i)kotoba/kangae/kimoti-ga tuuziru
word/idea/feeling-NOM go through
"make oneself understood/get one's {thoughts/feelings} across"
(ii)tutu-nuke
conduit-going through
"(information) leak"

5. It is not the case that the verb "morasu" can combine with any kind of action verbs to constitute a compound verb meaning "forget to do something":

(i)a. kaki/yomi-morasu
write/read-leak
"forget to write/read"
b. ??iki/benkyoosi/korosi-morasu
go/study/kill-leak

It may be the case that (a) is possible, because the verbs "write" and "read" have something to do with language.

6. The verb "nagasu" can take an <individuum> direct object when it means "to float something in the stream of water":

(i) zaimoku-o kawa-ni nagasu

log-ACC river-DAT float
"float a timber in the river"

This usage, however, does not mean that an <individuum> object is conceptualized as <fluid>; in (i), "zaimoku-o nagasu" can never mean "pour logs".

7. To express "fail to hear/say", the verbs "otosu"(drop) and "nogasu" (let escape, miss) are used to make a compound verb:

(i)a. kiki/ii-otosu
hear/say-drop
"fail to hear/mention"

b. kiki/ii-nogasu
hear/say-let escape
"fail to hear/mention"

The verbs "otosu" and "nogasu" typically take an <individuum> direct object:

(ii)a. enpitu-o otosu
pencil-ACC drop
"drop a pencil"

b. ookina sakana-o nogasu
big fish-ACC let escape
"miss a big fish"

Thus, we may say that WORD is conceptualized as an <individuum> in the expressions in (i). Interestingly, the verb "miru"(see) cannot combine with "morasu"(leak) or "nagasu"(let flow), but it can combine with "otosu"(drop) and "nogasu"(let escape), to mean "fail to see":

(iii)a. *mi-morasu/nagasu
see-leak/let flow

b. mi-otosu/nogasu
see-drop/let escape
"fail to see"

The reason fluid metaphors like (iiia) are not used might be that we have a folk model according to which our visual field is occupied by clearly demarcated, discrete objects.

8. The verb "kakeru" is known for its polysemy (hang, cover, wear, sit, etc.). One of its meanings is similar to "abiseru":"to sprinkle, throw (water)". It takes a <fluid> or a mass-like <solid> direct object:

(i) mizu/sio-o kakeru
water/salt-ACC sprinkle
"pour water over/sprinkle salt on"

The following expression might be related to the above use of "kakeru":

(ii) atatakai kotoba-o kakeru
warm word-ACC ?
"give (someone) kind words"

9. The expression (37) is quite different from the English equivalent Reddy (1979) gives, namely, "Can you actually extract coherent ideas from that prose?". The verb "extract" can take a <fluid> direct object (e.g., extract juice from lemons) as well as an <individuum> direct object (e.g., extract a tooth). I suspect, however, that Reddy's intended image is that "ideas" are discrete objects taken out of a container.

10. Ikegami(1988) quotes a passage from the preface to Kokinwakashuu (a collection of waka poetry compiled in the tenth century), where "kokoro" (heart) is compared to a seed and "kotoba"(word) to its buds or leaves.

11. The fusion of WORD and MEANING in Japanese is best observed in examples (36) and (37), where "kotoba"(WORD) is used to mean MEANING(= thoughts/feelings).

cf. (36)' kanozyo-no sinsetu-ga kokoro-ni simiru
she-GEN kindness-NOM heart-DAT soak into
"Her kindness sinks into my heart"

(37)' kangae/kimoti/kokoro/imi-o kumu
thought/feeling/heart/meaning-ACC draw (water)
"take into consideration someone's thought/feeling/heart/intention"

Recall, in this connection, that, in Reddy's conduit metaphor (1a), what moves is "thoughts/feelings", instead of "words".

cf. ?Try to get your words across better.
?None of Mary's words came through to me with any clarity.

These sentences may be acceptable only when "words" refers to actual physical sound. See Note 4 (i) for the contrast with Japanese.

12. From this viewpoint, the following cliché makes sense:

(i) tateita-ni mizu-o nagasu yooni hanasu
vertical wooden board-DAT water-ACC pour as if talk
"(He) speaks fast and fluently"

13. In the following examples, WORD is conceptualized as FOOD/DRINK:

(i) kotoba-ga nodo-kara dekakatteiru
word-NOM throat-from be just about to come out
"words are on the tip of one's tongue"

(ii) kotoba-o nomikomu
word-ACC swallow,drink
"swallow one's words"

14. For the various problems entailed by the conduit metaphor, see Lakoff and Johnson (1980: Ch.3) and Langacker (1991:508).

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NULL-EXPLETIVE SUBJECT IN JAPANESE

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Abstract: In the current Government and Binding framework, every sentence must have a subject. When the matrix subject position is non-thematic, it is filled by an expletive. Japanese, however, lacks an overt expletive. This raises the question of whether the language has an expletive which is null, or raises an embedded subject to the matrix subject position. I will argue that Japanese does indeed have a null-expletive by discussing how a negative polarity item behaves in a so-called 'raising' construction.

0. Introduction

According to Chomsky's Extended Projection Principle, every sentence must have a subject. Japanese, however, lacks an overt expletive to fill the subject position when the position is a non-theta position. It is controversial whether or not Japanese has a null-expletive and not many arguments have been presented. I will argue that Japanese does have a null-expletive. To show that, I will discuss the behavior of a negative polarity item sika-negative in so-called 'raising' constructions. Raising constructions are discussed in Nakau (1973) and Kuno (1976) among others. Sika-Negative construction is studied in detail by Muraki (1978). Negation is discussed in McGloin (1976).

The argument goes as follows. Assuming that the matrix subject position must be filled, which will be argued later, if there is no expletive to fill the matrix subject position, raising of an embedded subject to that position must be forced. If there is an expletive, the embedded subject can stay in its original position.

1. Government Restriction on Sika--Negative

XP-sika necessarily occurs with a negative and means 'only'. Sika can attach to any argument in a

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sentence, as shown below.[1]

(1)a. Takashi-ga hamati- sika tabe-na- katta
Takashi NOM yellow tail only eat NEG past

koto (object)
fact

'the fact that Takashi ate only yellow tail'

b. Hanako-ga getuyoobi-ni-sika dyuku- e
Hanako NOM Monday on only prep school to

ika-na- katta koto (Time)
go NEG past fact

'the fact that Hanako went to her prep school only on Mondays'

c. Takashi-ga hahaoya-no tame-ni-sika
Takashi NOM mother GEN sake only

ryoori- o si-na-i koto (Benefactive)
cooking ACC do NEG fact

'the fact that Takashi cooks only for his mother'

In the examples above, sika and the negative predicate are in the same clause where negative governs XP-sika. When they are not in the same clause and government fails, the examples are ungrammatical, as shown below.

(2)a. *Takashi-sika [Hanako-ga gokuhisyorui-
Takashi only Hanako NOM top secret document

o moyas-ana-katta] riyuu- o sitte-iru.
ACC burn NEG past reason ACC know PROG

'Only Takashi knows the reason why Hanako burned the top secret document.'

b. *Takashi-ga [Hanako-sika gokuhisyorui- o
Takashi NOM Hanako only t.s. document ACC

moyasi-ta] riyuu -o sir- ana-i.
burn past reason ACC know NEG

'Takashi knows the reason why only Hanako burned the top secret document.'

However, it is known that there are grammatical sentences which have non-clausemate sika and NEG as shown below.[2] (See Kitagawa (1986) and Sells (1991).)

(3) Takashi-ga [hahaoya-ni-sika nak-are- na-
Takashi NOM mother DAT only cry PASS NEG

katta.
past

'Takashi had only his mother cry.'

(4) Takashi-ga [Hanako-ni ika- sika tabe] sase-
Takashi NOM Hanako DAT squid only eat CAUS

na- katta.
NEG past

'Takashi let/made Hanako eat only squid.'

Let us call these examples of sika--Negative (SN) long-distance SN.

Now consider the causative examples below.

(5) Watasi-wa [Hanako-ni benkyoos-ase] nak-katta.
I TOP DAT study CAUS NEG past

'I did not let/make Hanako study.'

(6) *Watasi-wa [Hanako-ni benkyoos-na] sase-ta.
I TOP DAT study NEG CAUS past

'I let/made Hanako not to study.'

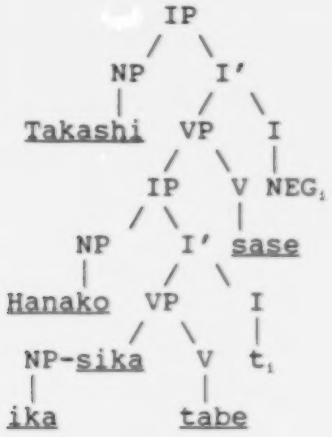
The negative cannot be in the lower clause as shown in (6). The negative in (5), however, has both matrix scope as in (7a) and the lower scope as in (7b).

(7)a. I did not let/make Hanako study.
b. I let/made Hanako not to study.

The fact that the negative in the matrix clause has a lower scope suggests that there is a derivation in which the negative starts out in the lower clause and undergoes raising to a higher Infl. In a sentence which has sika, then, we could say that a negative is underlyingly a clausemate of sika where the negative governs sika, and undergoes raising.

Let us consider the structure of a long-distance SN example (4). It is shown below.

(8)



The negative downstairs raises to the higher Infl. The trace of the negative must be properly governed due to the ECP.

Following Baker, I assume that the embedded verb tabe undergoes incorporation to the causative morpheme sase in order to affix to it. Due to this process, there is no barrier between the raised negative and its trace, due to the Government Transparency Corollary, given in (12). (See Baker (1988) for details of incorporation.) The definition of government and barrier that I assume is from Baker (1988). (See Chomsky (1986) for slightly different definitions.)

(9) A governs B iff A c-commands B and there is no category C such that C is a barrier between A and B.

(10) Let D be the smallest maximal projection containing A. Then C is a barrier between A and B if and only if C is a maximal projection that contains B and excludes A, and either:
(i) C is not selected, or
(ii) the head of C is distinct from the head of D and selects some WP equal to or containing B.

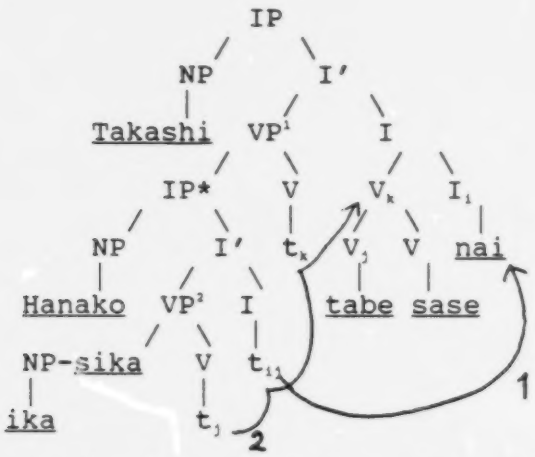
(11) A selects B if and only if:
(i) A assigns a theta role to B, or
(ii) A is of category C and B is its IP, or
(iii) A is of category I and B is its VP.

(12) Government Transparency Corollary

A lexical category which has an item incorporated into it governs everything which the incorporated item governed in its original structural position.

The movement in (8) takes place as shown below.

(13)



In (13), NP-sika is governed by the trace of negative at S-structure, and also the structure is allowed with regards to the ECP. Due to the incorporation, none of IP*, VP^1 or VP^2 is a barrier. Thus (13) (=8) is OK.

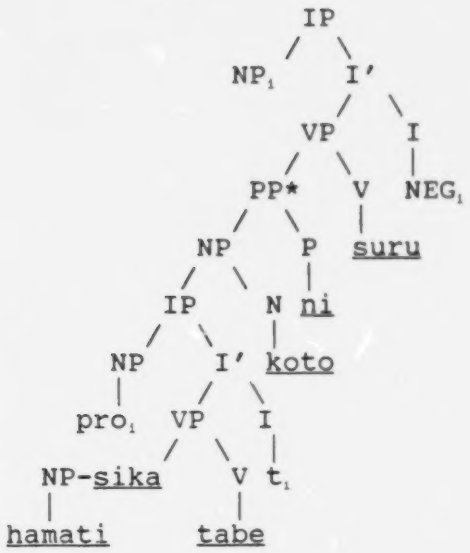
Now consider the example below, which is ungrammatical.

(14) *Takashi-wa hamati-sika taberu koto-ni si-
Takashi TOP y.tail only eat fact DAT do

na-i.
NEG

'Takashi decides on the fact that he eats only yellow tail. =Takashi decides on eating only yellow tail.'

(15)



In (14), the raised negative does not properly govern its trace because PP* is a barrier. Therefore (14) is ruled out by the ECP.

To sum up so far, I have argued that only in the constructions where the raised negative can properly govern its trace, the long-distance SN is allowed.

If my analysis is correct, we would predict that long-distance SN is allowed in any structure which involves incorporation. This is because incorporation 'erases' barriers, due to the Government Transparency Corollary, given above. This prediction is correct. Long-distance SN is possible in sentences which have grammatical combinations of affixes. (See Sugioka (1984) and Terada (1990) for interactions among complex predicates.) The working of the sentence similar to the ones below is shown in the tree in (13). The intermediate IPs and VPs cease to be barriers due to the incorporation no matter how deep the most deeply embedded verb is.

(16) Hanako-wa $_{IP}$[Takashi-ni $_{IP}$[ika- sika tabe]
Hanako TOP Takashi DAT squid only eat

sase] rare-na- katta.'
CAUS PASS NEG past

'Hanako was made by Takashi to eat only squid.'

(17) (Kantoku-wa eiga-no naka-de aru dake-no higeki-o Akiko-ni ataeyoo-to hazime-wa omotte ita ga, ato-de daihon-o kaete,)

?Kare-wa $_{IP}$[Akiko-ni $_{IP}$[dyooo- ni sita- sika
he TOP Akiko DAT queen DAT tongue only

nuk] are] sase-na- katta.
extract PASS CAUS NEG past

(The director thought at the beginning that he would give as much tragedy as possible to Akiko in the movie, but later he rewrote the script and,) 'he made Akiko to have extracted only her tongue by the queen.'

Thus we have seen that in order for long-distance SN to be allowed, the raised negative must properly govern its trace.

2. So-called 'Raising' Verbs and Long-distance SN

Let us turn to the behavior of SN in the so-called 'raising' constructions. (See Nakau (1973) for detailed discussion of the raising construction.[5]) I will argue that not all the so-called 'raising' constructions involve raising. The ones which do not involve raising of the embedded subject require a null-expletive subject in the matrix clause.

In order to see the behavior of SN in these constructions, we exclude the predicates which do not allow the negation in the first place. Some examples of these are soo-da 'hear', mono-da 'used to', rasi-i 'appear', yoo-da 'seem', mitai-da 'seem', tokoro-da 'at the moment of'.

There are, however, 'raising' predicates which allow negation but not long-distance SN. Some examples are no 'it is the case', hazu 'expectation', and -ka mo sire-nai 'might'.

(18) *Takashi-wa namaniku- sika tabeta no dewa-na-
Takashi TOP raw meat only ate case NEG

i.'

'It is the case that Takashi ate only raw meat.'

(19) *Takashi-wa namaniku- sika tabeta hazu
Takashi TOP raw meat only ate expectation

dewa-na-i.'
NEG

'It is expected that Takashi ate only raw meat.'

Note that it is not that the predicates in (18-19) are incompatible with SN per se. Local SN is fine with these predicates, as shown below.

(20) Takashi-wa namaniku-sika tabe-na-katta no da.
NEG case COP

'It is the case that Takashi ate only raw meat.'

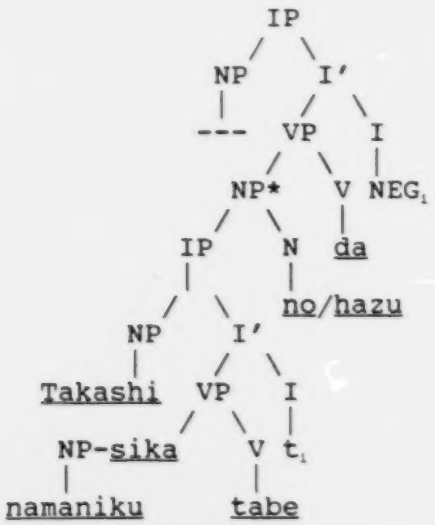
(21) Takashi-wa namaniku-sika tabe-na-katta
NEG

hazu da.
expectation COP

'It is expected that Takashi ate only raw meat.'

Thus the ungrammaticality of (18-19) suggests that there are barriers between the raised negative and its trace. The structure is shown below.

(22) *



In (18), NP* is a barrier, thus the trace is not properly governed, so it is ungrammatical.

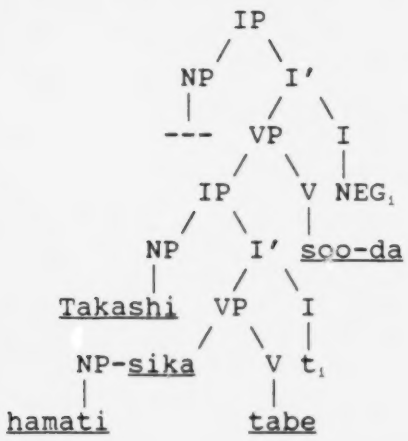
On the other hand, there are so-called 'raising' predicates which allow long-distance SN. These include soo-da 'seem' and (koto-ga) aru 'fact exists =has an experience of'. An examples of these is given below.

(23) Takashi-ga hamati- sika tabe- soo- dewa-na-i.
Takashi NOM y. tail only eat seem NEG

'Takashi seems to eat only yellow tail.'

The structure of (23) is shown below.

(24)



The embedded V undergoes incorporation, since the matrix verb is a bound morpheme. Thus there is no barrier between the NEG and its trace. Therefore (23) is grammatical.

We have seen the grammatical long-distance SN and ungrammatical ones. When the raised negative properly governs its trace, long-distance SN is allowed.

3. Null Matrix Subject

We saw above that long-distance SN is barred in some 'raising' constructions due to the presence of barriers between the NEG and its trace. It then immediately follows that the raising of a subject out of an embedded clause to the matrix sentence is also impossible in those sentences. The same barriers which block long-distance SN would act as barriers between the matrix subject and the embedded subject. Therefore, the structures of those 'raising'

constructions must have a null-expletive in their matrix subject position. On the other hand, the 'raising' constructions which allow long-distance SN has no barriers between the NEG and its trace, therefore there are also no barriers which would block the raising of an embedded subject to the matrix subject position.

This makes predictions. One is that if long-distance SN is blocked where sika is attached to the object, it should also be blocked where sika is attached to the subject. This is because the embedded subject stays in the original position and therefore is susceptible to the same barrier as the embedded object. This prediction is correct. Consider the examples below. They are ungrammatical.

(25) *Takashi-sika namaniku- o tabeta no dewa-
Takashi only raw meat ACC ate case NEG

na-i.

'It is the case that only Takashi ate raw meat.'

(26) *Takashi-sika namaniku-o taberu hazu
Takashi only raw meat ACC eat expectation

dewa-na-i.
NEG

'It is expected that only Takashi eats raw meat.'

The analysis also predicts that in a construction which allows long-distance SN, the subject can bear sika too. The reason is as follows. If the embedded subject stays in the original position, the trace of negative is properly governed. If the embedded subject undergoes raising to the matrix subject position, XP-sika becomes the clausemate of the raised negative, and thus it is also grammatical. This prediction is also correct. Constructions which allow object-SN also allow subject-SN.

(27) Takashi-sika namaniku- o tabe-soo dewa-na-
Takashi only raw meat ACC eat seem NEG

i.

'Only Takashi seems to eat raw meat.'

(28) Takashi-sika namaniku- o tabeta koto-ga
Takashi only raw meat ACC ate fact NOM

na-i.
NEG

'Only Takashi has eaten raw meat.'

In short, there are no raising predicates which allow object-SN but not subject-SN, or vice versa.

To sum up the discussion so far, we have argued that the restriction on long-distance SN restricts the possibility of raising an embedded subject. Then, with predicates which do not allow long-distance SN, and thus there is no raising of an embedded subject to the matrix subject position, as shown in (20) and (21), it must be a null-expletive that fills the matrix subject position.[8,9]

4. Passive Facts

The discussion above assumes that the matrix subject position must be filled. There is evidence from the passive construction that this is the case in Japanese. That evidence further leads to the argument that the raising of an embedded subject is available only when necessary. Consider the example below.

(29) ??___ hitobito-ni $_{CP}$[sono sinpu-ga sin'yoo-
people DAT that priest NOM trust

dekiru ningen da to] omow- are- te iru.
able man COP COMP think PASS PROG

'It is thought by people that that priest is a trust-worthy man.'

Assuming that a CP does not need Case, it should be able to stay in the object position. However, (29) is a very awkward sentence unless the ni-phrase is focused. The natural sentence is shown below.

(30) Sono sinpu-ga hitobito-ni sin'yoo-dekiru
that priest NOM people DAT trust able

ningen da to omow- are- te iru.
man COP COMP think PASS PROG

'That priest is thought to be a trust-worthy man by people.'

The fact that (29) is very awkward suggests that the matrix subject position must be filled in Japanese. The awkwardness of (29) also raises a question of the availability of a null-expletive. Why can a null-expletive not fill the position and make the sentence perfect? I will suggest that a null-expletive is available only when necessary. In other words, raising of an embedded subject is obligatory when it is possible. I will argue that the embedded subject has raised out of the lower clause in (30), yielding the structure shown below.

(31) Sono sinpu$_i$-ga hitobito-ni $_{CP}$[t_i sin'yoo-dekiru ningen da to] omow-are-te iru.

Let us consider now why the raising out of a CP in (31) is possible. In Japanese, omow, sinziru, iw can be ECM verbs. In other words, the CP of their complements can be deleted. Thus the 'subject' of the embedded clause can be Accusative Case-marked, as shown below. (For different analyses of this phenomenon, see Kuno (1976) and Sells (1990).)[10]

(32)a. Hitobito-ga sono sinpu- ga / o sin'yoo
people NOM that priest NOM/ACC trust

dekiru ningen da to omotte iru.
able man COP COMP think PROG

'People think that that priest is a trust-worthy man.'

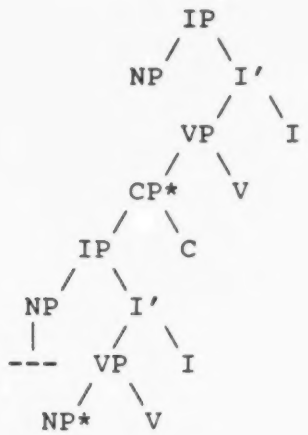
b. Sinsain-wa Akiko-ga/o utukusii to
referee TOP Akiko NOM/ACC beautiful COMP

omotta.
thought

'The referees thought that Akiko was beautiful.'

Notice that embedded clauses of ECM verbs in Japanese are finite clauses, unlike English. Because of this, predicates of embedded clauses must be unaccusative in order to allow ECM.[11] In other words, only Caseless objects can be Exceptionally Case-marked, as shown in the tree below.

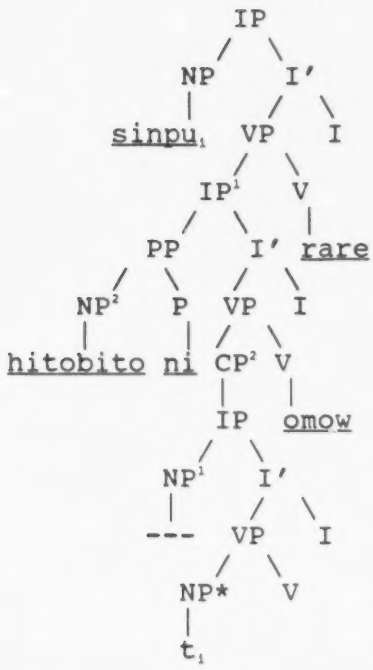
(33)



The Caseless object is NP*. Only NP* can be Exceptionally Case-marked, when CP* is deleted or ceases to be a barrier. If the predicate of the lower clause is unergative, ECM would be ruled out. This is because the embedded subject already has Nominative Case assigned by lower Tense[12], and thus ECM would doubly Case-mark it.

When CP deletion takes place[13], NP* can raise to the matrix subject position since there is no barrier, as shown below. The tree below is the structure of (31).

(34)



CP^2 is deleted by ECM, and IP^1 is not a barrier due to verb incorporation of omow to the passive morpheme rare.[14] Thus there are no barriers between the matrix subject and its trace. The NP-trace is also bound within its governing category. NP^2 is not an accessible subject because it does not c-command the trace. Neither is NP^1, because it is empty. Thus the governing category for the NP-trace is the matrix S and the trace is bound there. Therefore the raising to the matrix subject position as shown in (31) is allowed.

This analysis predicts that ECM sentences allow long-distance SN, since there are no barriers between the matrix Infl and the lower Infl. This prediction is correct. Consider the examples below.

(35)a. Hitobito-wa [sono sinpu- sika sin'yoo-dekiru
people TOP that priest only trust able

ningen da to] omotte i- na-i.
man COP COMP think PROG NEG

'People think that only that priest is a trust-worthy man.'

b. Sinsain-wa [Akiko-sika utukusii to]
referee TOP Akiko only beautiful COMP

omow- ana-katta.
think NEG past

'The referees thought that only Akiko was beautiful.'

On the other hand, the analysis predicts that when ECM is ruled out due to the Case filter, namely when ECM would doubly Case-mark the subject, even when the verb can be an ECM verb, long-distance SN should not be allowed. This is because CP constitutes a barrier since CP deletion is not allowed. This is also correct.

(36)a. *Takashi-wa $_{CP}$[Hanako-sika gokuhisyorui-o
Takashi TOP Hanako only t.s.document ACC

moyasita to] omow- ana-katta.
burned COMP think NEG past

'Takashi thought that only Hanako burned the top-secret document.'

b. *Takashi-wa $_{CP}$[Hanako-ga gokuhisyorui-sika
t.s.document only

moyasita to] omow-ana-katta.

'Takashi thought that Hanako burned only the top-secret document.'

To sum up, ECM is only allowed when the embedded predicate is unaccusative. Only in those cases, long-distance SN is allowed. So we have seen how the raising of an embedded subject out of a CP is possible.

Now, back to the original question regarding a passive sentence with a null-expletive subject. Why isn't a sentence like (29) perfect if a null-expletive is available? I suggest that a null-expletive is available only when nothing else is available. In (29), raising of a lower subject is possible, thus a null-expletive cannot be used. Thus (29) with a null-expletive is ungrammatical. Why, then, is the string of (29) still grammatical though awkward? I suggest that the string of (29) can be a scrambled form of the sentence (30), with its ni-phrase scrambled to the front. Scrambled items always bear some type of focus,

thus the string of (29) is OK only when the ni-phrase is focused.

To sum up the discussion, I have argued that SN is allowed when the negative governs XP-sika. If negative undergoes raising, the raised negative must properly govern its trace due to the ECP. We then examined the behavior of long-distance SN in the so-called 'raising' constructions. Only the predicates which allow long-distance SN allowed the raising of the embedded subject to the matrix subject position. When the raising is not allowed, the matrix subject position must be filled with a null-expletive. Furthermore, the passive construction suggested that a null-expletive is available only when necessary.

NOTES

[1] Sika can also attach to verbs, adjectives, and adverbs, but it is not relevant to our discussion and thus will be put aside.

[2] There is one verb which allows long-distance sika-NEG, even if the sentence does not seem to involve incorporation. The verb is aru. It's negative form is nai.

(i) [[Takashi-ga hamati- sika tabeta] koto]-
Takashi NOM yellow tail only ate fact

ga na-i.
NOM NEG

'There is a fact that Takashi ate only yellow tail. =Takashi has eaten only yellow tail.'

Aru is an unaccusative verb but it is not the property of unaccusative verbs that allows long-distance sika-NEG. Long-distance sika-NEG sentences with other accusative verbs, as well as unergative verbs, are ungrammatical, as shown respectively below.

(ii) *Takashi-ga hamati-sika tabeta koto-ga bare- na
reveal NEG

katta.

'It was revealed that Takashi ate only yellow tail.'

(iii) *Takashi-ga hamati-sika tabeta koto-o wasure-
forget

na-katta.
NEG

'Takashi forgot that he ate only yellow tail.'

As far as I know, aru is the only verb in Japanese that does not seem to involve incorporation and yet allows long-distance sika-NEG. All the examples that Muraki (1978) discusses but one are aru sentences. If it does not involve incorporation, the subject NP should be a barrier to Negative raising. One could say that there is indeed abstract incorporation involved. It would be the incorporation of the N koto into the verb aru. In order to claim that aru is the only verb that involves abstract Noun incorporation, however, further examination of the property of the verb is necessary. Therefore, I will put aside the aru sentences in this paper.

[3] This type of sentences is difficult to parse because of the multiple affixes attached to one verb. However, I believe that these sentences are grammatical.

[4] Although I gave the direct translation, NP-sika in sentences (16-17) have wide scope interpretation.

[5] Nakau argues that all the predicates that I deal with in this paper involve raising of the embedded subject to the matrix subject position. He gives four arguments. Unfortunately, he uses topic constructions to show his points, which I think invalidates his arguments. The argument about the exclusive listing reading of ga, however, is a stong one and I do not have a counter-argument at this point. Further study of exclusive listing reading of ga is necessary.

[6] Dewa-nai or zya-nai is the negative form of the copula da.

[7] Some speakers do not allow negation of hazu. However, (i) is grammatical for anyone.
(i) Takashi-wa namaniku- o tabeta hazu- wa

Takashi TOP raw meat ACC ate expectation TOP

nai.
NEG

'Takashi could not have eaten raw meat.'

This example behaves exactly like (21) in that it does not allow long-distance sika--NEG.

(ii) *Takashi-wa namaniku-sika tabeta hazu-wa na-i.

'Takashi could not have eaten only raw meat.'

This is predicted by our analysis because the raised negative does not properly govern its trace due to the barrier NP*, as shown in (22).

[8] John Whitman also argues that Japanese has a null-expletive. One of his arguments is that the reason why (i) below is ungrammatical is because the subject sensei is not raised to the matrix subject position. If it were in the matrix subject position, we would expect the predicate to be able to honorify it.

(i) ?*Sensei- ga o- mie- ni-naru hazu de-
teacher NOM HON-come-HON expectation COP

irassyaimasu.
HON(ORIFIC)

The teacher is expected to come.

[9] I assume that the subject can remain in the D-structure position and receive Nominative Case, since there exist sentences with more than one Nominative-marked NPs with its object marked with Nominative as well as its subject.

(i) Takashi-ga Furansugo-ga wakaru.
Takashi NOM French NOM understand

'Takashi understands French.'

Thus NP movement to the subject position in order to receive Nominative Case is not obligatory in Japanese, as it is in English.

[10] See the following footnote.

[11] Sells (1990), who argues that o-marked NP is a scrambled NP, notes that the embedded predicates must be unaccusative. The explanation for this, however, is different from what is presented here. See Sells (1990) for details.

[12] I assume here that Tense assigns Nominative Case, not just Infl. (See Hasegawa (1984/85).)

[13] CP deletion does not necessarily have to involve the actual deletion of the CP. What is involved is the CP to stop being a barrier.

[14] I am assuming that the embedded clauses in Japanese are IPs except when there is an overt complementizer. However, it does not affect the arguments in this paper if they are CPs.

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Part II: Studies in Native American Languages

ON SOME THEORETICAL IMPLICATIONS OF WINNEBAGO PHONOLOGY

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Abstract: This paper is essentially a commentary on Steriade 1990, which deals *i.a.* with certain aspects of Winnebago phonology. The issues cluster around a much-discussed process known as Dorsey's Law (see Miner 1992 and references given there) which is operative in Mississippi Valley Siouan and which Steriade has generalized to other language groups. I discuss Winnebago syllable structure, cyclic syllabification, cluster reduction and the formalization of Dorsey's Law itself.

Introduction.

Dorsey's Law (hereafter DL) in Winnebago is a process which copies a vowel into an immediately preceding cluster of voiceless obstruent + resonant:

$$\begin{bmatrix} -son \\ -vce \end{bmatrix}\ \begin{bmatrix} -syl \\ +son \end{bmatrix}\ [+syl\ ] \qquad 1\ \ 2\ \ 3 \rightarrow 1\ 3\ 2\ 3$$

(Below we will consider non-GP formalizations of DL). Thus *pra* → *para*, *kna* → *kana* and so on. Such words as the following show the effect of DL (copied vowels are underlined; "-" separates person prefix from root/stem):

(1)	*šo<u>ró</u>š*	'deep' */šroš/*
	ka<u>ra</u>hé	'be on the way returning' */krahe/*
	ša<u>wa</u>póx	'you stab' */š-wapox/*
	hipe<u>re</u>rés	'know' */hipres/*
	hirupi<u>ni</u>	'twist' */hirupni/*
	ke<u>re</u>pá<u>na</u>	'unit of ten' */krepna/*
	šu<u>ru</u>xú<u>ru</u>k	'you earn' */š-ruxruk/*

In Miner 1981 I pointed out that DL must be prevented from applying in VC][CV contexts, as in the underlying form of *wáagnáka* 'that man sitting' ([*waak*] 'man' + [*nak*] 'sitting' + *-ga* 'that'; note that we do not get **waakánaka*) while being allowed to apply within single morphemes, e.g., [*hiruknana*] 'boss' →

hirukánana.[1] When a voiceless obstruent precedes a resonant which belongs to a following root in a compound, or to a suffix, as in *wáagnáka*, instead of triggering DL it voices, and a brief schwa intervenes between the obstruent and the resonant.

I also mentioned in Miner 1981 that we cannot simply constrain the rule so as to apply only within single morphemes because in the case of either of two prefixes, each consisting of a single voiceless obstruent, DL does apply rather than the voicing of the obstruent and the insertion of schwa. The first of these DL-triggering prefixes is the second person prefix for second-conjugation verbs, *š-*. Compare the following second conjugation verbs in their citation form and with the prefix:

(2) stems not beginning with a resonant

gúu 'leave returning here'
šgúu (2nd p)
t'ée 'die'
šǰée (2nd p)
'íi 'live, be alive'
š'íi (2nd p)

(3) stems beginning with a resonant (copied vowel underlined)

waší 'dance'
šawaší (2nd p)
rugás 'tear'
šurugás (2nd p)
rée 'go'
šeré (2nd p)

The other prefix that behaves this way is *k-* 'one's own', also when attached to second conjugation verbs beginning with a resonant:

(4) stems not beginning with a resonant

'ǔu 'make; wear'
k'ǔu 'make, wear one's own'
hi'é 'find'
hik'é 'find one's own'

(5) stems beginning with a resonant (copied vowel underlined)

rušip 'pull down'
kurušip 'pull down one's own'
račgą́ 'drink'
karačgą́ 'drink one's own'

Steriade 1990 suggests that the correct application of Dorsey's Law can be obtained if syllabification in Winnebago is cyclic (1990:389) and if the syllabification rule ignores morphemes consisting of a single consonant on the first cycle (1990:fn 8). One purpose of this paper is to check this hypothesis against further data.

Steriade notes that the suggested analysis assumes that the obstruent-resonant clusters which are broken up by DL are complex syllable onsets, and inserts the cautionary remark (1990:390) that "this may not be completely clear in Winnebago." A second purpose of this paper is to make it clear that this assumption of Steriade's is correct.

Finally, Steriade suggests that DL is most straightforwardly formulated in a theory without timing slots, such as the gestural model of Browman & Goldstein. Some further evidence from Winnebago is given in support of this conclusion.

Winnebago Syllable Structure.

Segments.

Assuming without argument that those Winnebago obstruents (both stops and fricatives) that are immediately followed by a glottal stricture consist of two segments rather than single segments specified with some feature for glottality,[2] the underlying consonants of Winnebago are as follows:

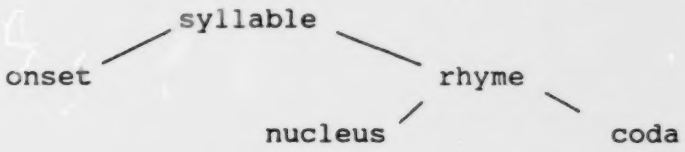
(6)

	labial	dental	palatal	velar	glottal
stops					
voiceless	*p*	*t*	*č*	*k*	
voiced	*b*		*ǰ*	*g*	
fricatives					
voiceless		*s*	*š*	*x*	
voiced		*z*	*ž*	*ǧ*	
nasals		*m*	*n*		
trill			*r*		
glides	*w*		*y*		*h*

Note that obstruents occur in pairs of voiceless/voiced except for *t*. This single dental stop, although written *t* traditionally following Susman 1943 and Lipkind 1945 is in fact voiced except in the cluster *st*, on which see below.

Another traditional graph, *ǧ*, denotes a voiced velar fricative.

I assume the Winnebago syllable has the familiar structure



and in the following sections I will give the phonotactics of the various syllable constituents. What I am describing here is the root syllable; it will be seen below that suffixes mostly conform to the conditions on root-initial onsets; however prefixes have reduced phonology and, except for the *š-* and *k-* prefixes mentioned above, are not relevant to DL and will not be discussed in this paper.

Onsets.

A syllable onset consists minimally of a single consonant; it may contain two consonants, or one consonant plus a vocoid functioning as a glide or

transition element. This vocoid (any vowel but a) will be discussed below when I deal with vowels in §3.

Single-consonant onsets may contain any consonant. Therefore the onset node must license all of the distinctive features (autosegments) for underlying Winnebago consonants.

(7)

In two-consonant onsets the first member is always a voiceless obstruent. On the basis of the second member these two-consonant onsets divide naturally into (a) those in which the second member is the glottal stop, (b) those in which the second member is an obstruent, and (c) those in which the second member is a resonant. Only (c) undergo Dorsey's Law.

Any of the voiceless obstruents in the first onset position can be followed by the glottal stop except, rather inexplicably, *č*:

(8)

p'aap'áč 'give to the touch'
t'úup 'put something long'
k'ée 'dig'
s'íi 'for a long time'
š'ée 'drip'
x'ée 'drip' (thin liquids)

An obstruent second member of a two-consonant onset is systematically a voiced plosive or a voiceless spirant--that class of [αcontinuant, -αvoiced] obstruents shown in Miner 1979 to recur often in Siouan phonotactics--except that the [+grave] pair *b/x* is omitted. The following are the possibilities:

(9)	g	ǰ	s	š
p		*pǰ	ps	pš
k		kǰ	ks	kš
s	sg	*sǰ		
š	šg	šǰ		
x	xg	xǰ		
č	čg		*čs	*čš

Though not central to our discussion, a few points regarding these clusters may be made. All of the empty intersections are accounted for by noting that obstruents of same manner of articulation do not occur (no two stops, no two spirants, no two affricates[3]); that is, a syllable onset licenses only one set of manner of articulation features. Apparently the frequent claim that onsets license only one place feature is counter-exemplified in Winnebago by *šǰ*. It may be significant that all the clusters except *šǰ* have a grave (labial or velar) component. This same *šǰ* cluster is also the only exception to the generalization that only one member of a two-consonant onset may be [+strident], which would account for **čs, *čš*. However for the moment I treat the asterisked possibilities as ad hoc. In addition to the above at least partly principled clusters, *st* occurs with voiceless *t*, in violation of the [αcontinuant, -αvoiced] constraint on second member. It is theoretically possible to treat *st* as derived in every instance from the missing **sǰ* (for reasons see below), which would leave only **pǰ* as wholly anomalous.

The following examples exemplify the possible two-consonant onsets of this type:

(10)
psíipsíč 'small change'
pšoopšóč 'fine'
ksáač 'stiff'
kšée 'apple'
kǰée 'revenge'
stoohí 'gather'
sgáa 'white'
šgáač 'play'
šǰáak 'warm'
xgaąsák 'energetic'
xǰaanáne 'yesterday'
-čga 'try'

In the case of two-consonant onsets with resonant as second member, again the first member is a voiceless obstruent except *t* (*p k s š x č*), while the second member is any of the three resonants *r, n, w* except that **čr* does not occur in native words.

The following exemplify the onsets of this third type:

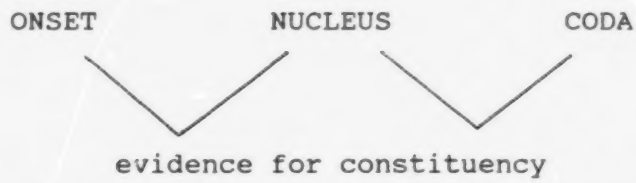
(11)
/pras/ 'flat'
/pna/ 'odor'
/kre/ 'leave returning'
/knu/ 'first son'
/srek/ 'long and thin'
/sni/ 'cold'
/šra/ 'hairless'
/šna/ 'be visible'
/šwu/ 'itch'
/xre/ 'boil'
/xnu/ 'small'
/xwani/ 'lost'
/čwi/ 'sound causing reverberation'

It is clear that while voicing is contrastive in the case of single-consonant onsets (e.g., *čáa* 'deer' vs. *ǰáa* 'frozen'; *síi* 'leg' vs. *zíi* 'yellow/brown'), since any consonant can occur as a single-consonant onset, voicing is not contrastive in the case of two-consonant onsets. In clusters like *šǰ, čg* the use of graphs for voiced plosives in second position comes from Susman 1943, who made the decision on the basis of phonetic similarity: there is no voicing contrast in this position but since the occurring segments are wholly unaspirated while voiceless obstruents before vowels may be aspirated, she identified them with the voiced obstruents. But what we really want to say about these clusters, like the English *sp, st, sk* syllable-initial clusters that have been discussed for so many years, is that voicing is not

contrastive in them.

Note that this is not the same as saying that such a cluster requires only one specification of contrastive voicing for the entire cluster (this point has often been made; see the summary and references in Goldsmith 1990:124-5). The latter claim would be valid for a language allowing such contrasts as *ts ~ dz*, etc. In Winnebago no two clusters contrast in voicing in any position.

This is not the first time a difference has been noted between CV syllables and CCV syllables. The CV syllable type shows that problematic constituency between onset and nucleus that inhibits our commitment to the rhyme:



Thus in Igbo, for example, a predominantly CV language, there are obvious co-occurence restrictions between the C and the V which do not occur in languages with more complex syllable types.

Obstruent-resonant Onsets

As mentioned above, Steriade 1990 was uncertain about whether the obstruent-resonant clusters to which DL applies are syllable onsets. Note however that the examples in (11) above show these clusters occurring utterance-initially in underlying representations, just as (10) shows the non-resonant clusters in utterance-initial position. The only difference between the two types of cluster is that the resonant clusters undergo DL, whether they occur in utterance-initial position or in medial position.

It is very clear that these clusters arise from syllable onsets historically as well; see for example the Chiwere cognates given in Miner 1992.

Codas

A syllable coda may consist of at most one obstruent; all are permitted except *t*; and they are always (underlyingly) voiceless in this position. Thus, like two-consonant onsets (see above), codas do not have contrastive voicing. (I remind the reader here that voicing is nonetheless contrastive in Winnebago, namely,

in single-consonant syllable onsets, e.g., *sii* 'leg' vs. *zii* 'yellow, brown.') Note that since only voiceless consonants occur in codas, while both voiced and voiceless consonants and *t* occur in (single-consonant) onsets, Winnebago conforms to the usual pattern of reduced phonology in codas. Several syllable codas are seen in the examples in (10) & (11).

Vowels, Nuclei and Prominence.

The vowels of Winnebago are as follows:

(12)

i		*u*
e		*o*
	a	

i	*u*
	a

Examples of the vowels abound in the foregoing. Two vowels (I prefer the term "vocoid" (Pike) to cover both nuclear and non-nuclear -cons segments) frequently, and three infrequently, form clusters. When this happens, the strongest vowel becomes prominent in accordance with the following strength hierarchy, first noted by Susman 1943:

STRONG ← *a o u e i* → WEAK

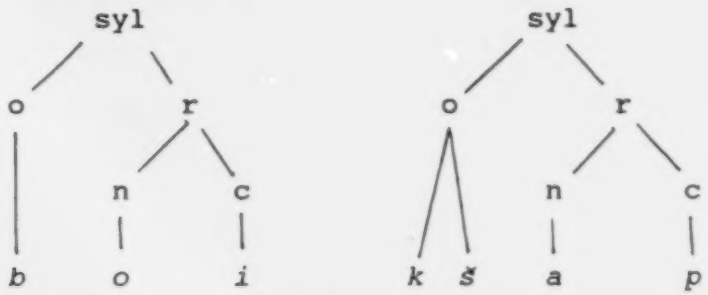
This prominent vowel becomes the nucleus of the syllable and takes the properties of accent (relatively high pitch sometimes accompanied by extra amplitude) if the syllable is accented. The other vocoids become part of the onset or coda (i.e., become "glides") depending on whether they precede or follow the nuclear vowel. Examples:

(13)
ˈáipa 'bracelet'
boáče 'I shoot off a piece'
bóiksap 'I come to'
hoiročá 'straight ahead'
náiwačgis 'saw' (n)
čiómiš 'rug'
hakeweánaga 'six and'
etc.

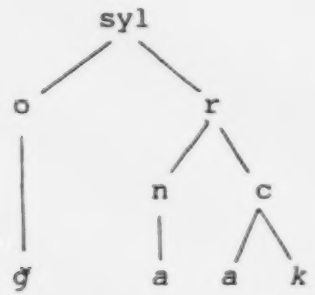
Accented long vowels have a falling pitch contour; thus it appears that their first members are nuclei:

(14) *zíi* 'yellow, orange'
sgáa 'white'

The word *bóikšap* 'I come to' given above has the following syllable structure:

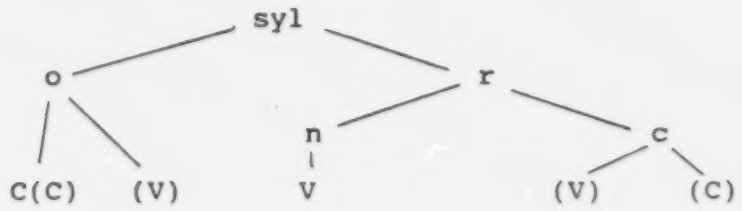


Here the coda of the first syllable is a non-prominent vocoid, while the coda of the second syllable (which has a complex onset) is a voiceless obstruent. The word *ǧáak* 'cry' has the structure:



The occurrence of a syllable-final obstruent would be limited to word-final position (as in the case of *bóikšap*) were it not for compounding. Outside of compounding, any consonant cluster goes with the following vowel in forming syllables (see below).

The syllable structure of the language, then, can be summarized as follows:



Note that this syllable structure implies that if all three vocalic positions are filled, the middle one must be prominent; this seems to be correct, although three-vowel clusters are uncommon. In the following examples, *o* is prominent:

(15) *wioiré* 'west'
čioiǰás 'tent'
nįoisą́ 'faded'

In the following, *ą* is prominent:

(16) *šiáįgexǰí* 'I am clumsy'

and so on.

Syllabification

The syllabification rules of Kahn (1976) are applicable to Winnebago:

(17) a. associate the syllable node σ to a vowel;
b. attach consonants one by one to the left as long as the syllable structure conditions in the language are not violated;
c. attach the remaining consonants one by one to the right as long as the syllable structure conditions in the language are not violated.

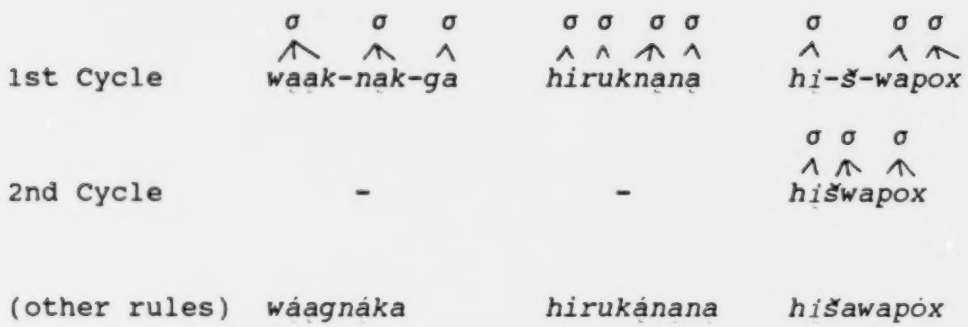
Let us apply this syllabification process to words of each crucial type we have discussed: *wáagnáka* 'that man sitting' */waak-nak-ga/*, *hirukánana* 'boss' */hiruknana/*, *hįšawapóx* 'you stab me' */hį-š-wapox/* (*hį-* 1p obj; *š-* 2p agent; *wapox* 'stab'). First we apply the rules non-cyclically (since syllable structure per se is not relevant to our discussion we omit it for simplicity):

(18) Non-cyclic syllabification

	σ σ σ	σ σ σ σ	σ σ σ
(17a)	*waak-nak-ga*	*hiruknana*	*hi-š-wapox*
	σ σ σ	σ σ σ σ	σ σ σ
(17b)	*waaknakga*	*hiruknana*	*hišwapox*
			σ σ σ
(17c)	-	-	*hišwapox*
	σ σ σ	σ σ σ σ	σ σ σ
(other rules)	*waaknaka*	*hiruknana*	*hišwapox*
DL	**waakanaka*	*hirukanana*	*hišawapox*

Non-cyclic syllabification gives not *waagnaka* but **waaknaka*--there is no way to keep *kn* in this derivation from becoming a syllable onset and undergoing DL. If on the other hand syllabification is cyclic, Steriade notes (1990:389), *k* will become a syllable coda on the first cycle and thus, according to Prince's (1985:479) Free Element Condition, will not be available for the onset of the following syllable. The prefix *š-* on the other hand will not become part of any syllable on the first cycle, since a syllable must have a vowel. This *š* will then be available for the onset of the following syllable on the next cycle:

(19) Cyclic syllabification



Apparently Steriade is right, then, that the assumption of cyclic syllabification (and the Free Element Condition) is required in Winnebago to account for the behavior of intramorphemic as opposed to heteromorphemic obstruent-resonant sequences as well as the assignment of single-morpheme consonants to the following onset. In the following section I will discuss some phenomena which seem to challenge the Free Element Condition.

Cluster Reduction

Consonant clusters of up to three consonants (one in a coda, combined with either one or two in an onset) arise in the compounding of roots, and these clusters remain:

(20)	*pée<u>ǰw</u>áač*	'locomotive'
	péeč	'fire'
	wáač	'boat'
	haa<u>pč</u>ék	'Monday'
	háap	'day'
	čéek	'new'
	háa<u>čt</u>é	'I go to eat'
	háač	'I eat'
	tée	'I go'
	etc.	

Note that clusters like *ǰw, pč, čt* are tolerated under these conditions and that they are not permissible onsets. Steriade's claim of cyclic syllabification plus the FEC accounts for the fact that they do not become onsets.

Suffixes begin with a vowel or a resonant (either of which voices a stem-final obstruent, a brief schwa appearing between the obstruent and the resonant in the case of the resonant); with any single obstruent (*č, ǰ,*

k, g, š, ž, are attested); or, in a few cases, with two obstruents. Interestingly, the two-obstruent clusters found suffix-initially are permitted as root onsets as well: *š', š', šg, kǰ, xǰ.* Generally when these are attached to roots/stems ending in an obstruent the resulting three-consonant cluster is tolerated:

(21)	*guučs'á*		'repeatedly shoot'
		gúuč	'shoot'
		-s'a	'do repeatedly'
	gišipšgúni		'he must have fallen
		gišip	'fall'
		-šguni	(dubitative)
	kanaksgé		'maybe he married'
		kanák	'marry'
		-sge	(uncertainty)

The toleration of these clusters, like the ones mentioned above which arise in compounding, is presumably due to cyclic syllabification and the FEC.

However a few suffixes appear to challenge the FEC; apparently the clusters to which they give rise do become onsets and the clusters are then made to conform with the requirements of onsets. I will show however that this is a case of a segment filling a vacated syllable position, rather than a violation of the FEC. The suffixes in question all begin with a velar followed by *ǰ* and involve the deletion of the velar.

The endings *-kǰe, -kǰare* (this *r* always becomes a weakly nasalized *n*, written *ň*), and *-kǰanahe* (all future or imperfective markers) have these shapes after vowels. After obstruents the combination *C-kǰ* may be broken up by the insertion of *i*: *gišgáp* 'strike'; *gišgabikǰaňé* 'he will strike'. But a more complex change may also occur, whereby *i* is inserted into the last syllable of the stem, the *k* of the suffix elides, and the *ǰ* becomes *t* (voiceless) after *s*, elides itself after *č*, and remains after other obstruents: *gišgáipǰaňé* 'he will strike'; *wiiráperes* 'you (sg) learn' (*hiperés* 'learn' with *wa-* intransitivizer); *wiirápereste* 'you (sg) will learn'; *haginąč* 'suffer', *haginą́če* 'will suffer.'

As noted there are two possible outcomes in the case of these endings: that represented by *gišgabikǰaňé* (I will call this outcome I) and that represented by *gišgáipǰaňé* (I will call this outcome II).

The ending *-xǰį* (intensifier; 'genuine') after a consonant loses its *x* and the *ǰ* undergoes the same changes just described: *háas* 'berry'; *haastį* 'blueberry'; *péeč* 'fire', *peečį* 'real fire;' *giisǰį* 'very curved.'

Using *-kǰe* (and assuming prior *i*-epenthesis) and *-xǰį* as examples, we have these developments:

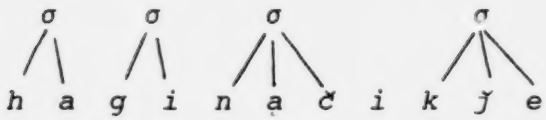
(22) metathesis		velar elision		adaptation to onset		
pikǰe	→	*ipkǰe*	→	*ipǰe*		
čikǰe	→	*ičkǰe*	→	*iČǰe*	→	*iče*
kikǰe	→	*ikkǰe*	→	*ikǰe*		
sikǰe	→	*iskǰe*	→	*isǰe*	→	*iste*
šikǰe	→	*iškǰe*	→	*išǰe*		
xikǰe	→	*ixkǰe*	→	*ixǰe*		
		pxǰi	→	*pǰi*		
		čxǰi	→	*čǰi*	→	*či*
		kxǰi	→	*kǰi*		
		sxǰi	→	*sǰi*	→	*sti*
		šxǰi	→	*šǰi*		
		xxǰi	→	*xǰi*		

Notice that the underlined clusters in the third column (*čǰ* and *sǰ*) are ones that are disallowed as syllable onsets; they become *č* and *st* respectively, which do conform to the onset conditions.

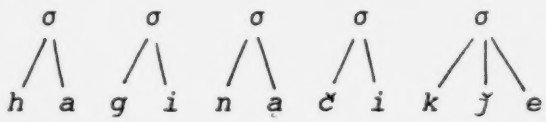
It is interesting that *pǰ* is tolerated here, however, since it has never been found as a root onset--cf. (8) above, recalling that I stated there that "it is theoretically possible to treat *st* as derived in every instance from the missing *sǰ*, which would leave only **pǰ* as wholly anomalous." It is tempting to think that the absence of **pǰ* in (9) might be an accidental gap; however, many years of work with this language by a number of linguists have failed to turn up a single case of root-initial *pǰ*.

The main point of this section is this: since clusters arising in suffixation adapt themselves to onset tactics, they must become onsets. This appears to violate the FEC, since what is syllabified once as a coda--the *s* of *hi.pe.rés* 'learn' for example--ends up as part of an onset--in *hi.pe.re.sté* 'will learn.'

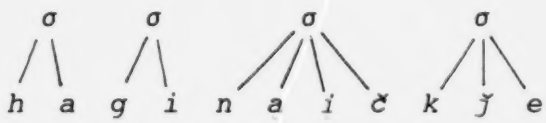
However if we assume cyclic syllabification and also that outcomes I and II for the imperfective endings differ in the relative ordering of *i*-Epenthesis and syllabification, it is fairly easy to see what is happening here. I will deal with the more complex outcome II first. Taking the form *haginǎč* 'suffer' as an example, we have, if syllabification applies before *i*-Epenthesis (outcome II), the following after both rules apply:



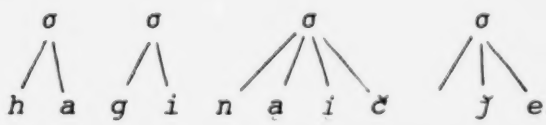
Here syllabification is complete but the epenthetic vowel is not assigned to a syllable. It must be picked up by either the coda of the preceding syllable or the onset of the following. The latter is full, so it can only become part of the coda of the preceding syllable; the FEC prevents *c*, which has already been assigned to a coda, from becoming the onset of a new syllable *či* giving

* 

(wrong for outcome II) and thus the vowel joins the preceding syllable coda by "automatically metathesizing" around the coda consonant, giving



When then the velar *k* deletes, it is an onset slot that is left unfilled:



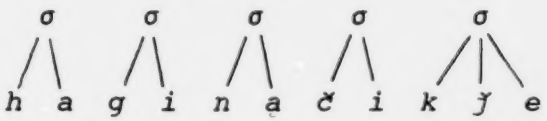
It is natural, considering the well-known principle of maximal onset, that *č* will move to the onset of the following syllable. Since this violates onset conditions, however, this cluster cannot remain and *ǰ* deletes, giving *haginą́iče*. Clusters which are permitted as onsets, however, remain, as seen in (22).

Of course the fact that *ǰ* rather than the original stem-final obstruent deletes or occlusivizes remains unexplained; I have also no way to motivate velar deletion other than to point out that velars are often found to be weak segments.

For outcome I, *i*-Epenthesis applies before syllabification and we get *haginą́ǰikǰe* with the epenthetic vowel simply forming a syllable with the stem-final obstruent--after *i*-Epenthesis we have:

h a g i n a č i k ǰ e

Then after syllabification we have:



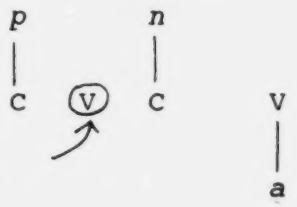
By a later rule a stem-final obstruent voices before a suffix-initial vowel, giving finally *haginájikǰe*.

Theoretical Implications of Dorsey's Law

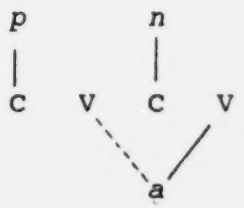
Steriade 1990 argues that DL has implications for a choice between the autosegmental model, which posits timing slots, and a tiered gestural model after Browman & Goldstein (1986, 1990) which does not and in which, therefore, gestures have inherent timing.

DL was formalized in §0 as it might be in a GP framework. In an autosegmental model it would be, as Steriade 1990 notes, formalized as a two-step process: first, a timing slot (say, a V) must be inserted; then this inserted V must be associated with the following vowel:

(23) i.



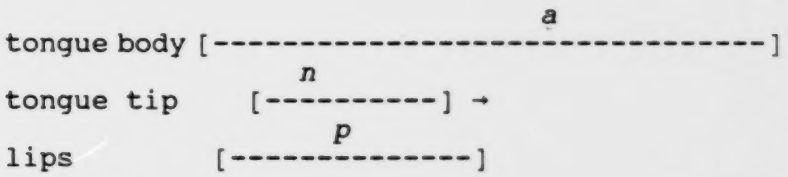
ii.



As Steriade (1990:388) observes, the problem is that "the insertion of a V slot in a string like /i.tra/ creates a new syllable: /i.tV.ra/. At this point, it is no longer possible to determine that the syllable /tV/ was at some point a part of the last syllable /tra/: it is therefore not possible to tell whether the V in /tV/ should associate to the features of the preceding /i/ or of the following /a/."

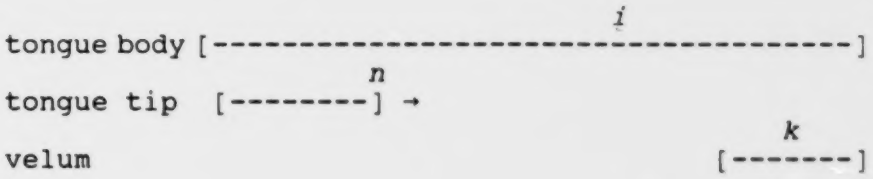
In contrast, in a gestural framework we have to do merely with a delay in the onset of the resonant component (1990:391):

(24) Tiers Gestures



Steriade's argument is somewhat strengthened by another Winnebago process, one which affects the only CVC suffix in the language, diminutive *-nįk*. This suffix optionally and in casual speech shows up as *-įñk*: *čaaši* 'gopher', *čaašinįk* or *čaašíñk* (diminutive); *wakéˊ* 'raccoon', *wakenįk*, *wakéįñk* (diminutive); *wanįk* 'bird', *wanįgnįk* or *wanįgiñk*. (This is the only source of *ñ* in Winnebago, and there are no other true palatal consonants, which motivates selection of *-nįk* as the underlying shape.) Since this change occurs whether *-nįk* follows a consonant or a vowel, it does not seem possible to explain it in terms of syllable structure as was done above with the diminutive and imperfective endings. But if gestures have inherent duration this process too is easily seen as a delay in the onset of the resonant component:

(25) Tiers Gestures



Conclusion

I have attempted to support the contentions of Steriade with regard to Winnebago phonology and have brought to bear some fresh data. Combined with the fairly extensive work done on the accentual phenomena of the language, this completes a preliminary theoretical account of the major phonological processes of Winnebago. A comprehensive lexical phonology remains to be worked out.

NOTES

[1] Note that accent must apply both before and after DL. I will have nothing to say about accent in this paper, as details are amply discussed in Miner 1992 and references given there.

[2] Since it does not seem relevant to the issues discussed in this paper, I will not argue this here.

[3] This was noticed by Susman 1943.

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Numic [r] Is Not a Spirant

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Abstract: Virtually all scholars working on Numic languages have called [r] a spirant or listed it, without comment, as resulting from spirantization. However, Central Numic shows that [r] results from an early rule of tap formation applying to /t/, with subsequent application of spirantization then affecting other stops. When we extend this analysis to Western and Southern Numic, the result is that in no Numic language has [r] ever belonged to a series of spirants.

In this paper we discuss languages in the Numic branch of Uto-Aztecan with regard to one facet of the consonant gradations found there.[1] Specifically, we focus on what is usually referred to as the spirantized series, arguing that one supposed member of this series, the alveolar tap (or flap) [r], is not now and never has been a spirant in any of these languages, and in fact has nothing to do with a process of spirantization. To anyone unfamiliar with Numic languages we may seem to be taking an obvious position, perhaps comparable to arguing that the earth is not flat. Therefore, we first present data from Panamint to show why it has become general usage among Numicists to speak of [r] as resulting from spirantization. We briefly summarize corresponding data in other Central Numic languages and propose an alternative, and we think superior, analysis. We then extend our analysis historically to Western and Southern Numic, and finally to Proto Numic. Our concluding remarks are based on some additional crosslinguistic data.

The underlying consonant and vowel system of Panamint is shown in (1).[2] We will be concerned with the oral stops, which exhibit gradation patterns when they occur phrase medially. One such pattern is illustrated in (2), where we see a four-way alternation involving the initial stop of the postposition /pa?an/ 'on'. The first column in (2) gives the citation form

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of four nouns, while the second column shows each noun in a phonological phrase with the postposition, whose initial consonant follows the space.[3]

(1)	p	t	ts		k	kw	
		s					
	m	n			ŋ	ŋw	
				j		w	h,ʔ
				i	y	u	
				e		o	
					a		

(2)		
	taße 'sun'	taße ßaʔa 'on the sun'
	muumbittšI 'owl'	muumbittši ɸaʔa 'on the owl'
	tyßa 'pine nut'	tyßap paʔa 'on the pine nut'
	hunna 'badger'	hunnam baʔa 'on the badger'

Any nonverbal stem in Panamint falls into one of the four classes illustratd in (2) with respect to the effect on a following stop. In this paper we are concerned with the so-called spirantizing stems such as 'sun', all of which have a final vowel in underlying representation. The forms in (3) show how such spirantizing stems affect a following syllable onset stop. The affected consonant again follows the space.

(3) Panamint spirant series

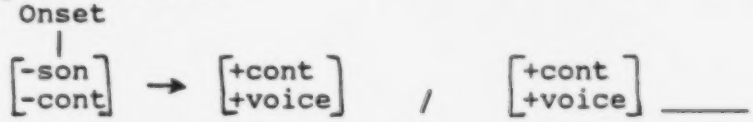
/p/:	ny ßuha 'my power'
/t/:	siðyhi ðyhyja 'these (dl. acc.) deer'
	ny rama 'my tooth'
/ts/:	ny zoʔo 'my great grandparent'
/k/:	ny ɣassa 'my wing'
/kw/:	ny ɣwassi 'my tail'

In general, the spirantizing stems cause following stop onsets to become voiced fricatives (i.e. spirants), all nonstrident except for [z], which preserves the stridency of underlying /ts/.[4] For /t/, however, we have two allophones: following a front vowel /t/ is spirantized to [ð], while after a back vowel /t/ surfaces as [r].

Given the overall pattern in (3), then, it should be obvious why Numic scholarship, commencing with Sapir (1930), has consistently included [r] with the spirants.[5] As seen in Panamint, underlying /t/ participates in spirantization, and the distribution of [ð] and [r] taken together matches exactly the distribution of the phones resulting from spirantization of the other stops.

Turning to a statement of spirantization itself, we can almost account for the Panamint data with rule (4), which assimilates syllable onset stops to the feature [+continuant] of a preceding vowel. For expository purposes we include in (4) an assimilation to the voicing of this vowel, though we believe that spirant voicing results from a separate rule.

(4) Spirantization



If (4) were to apply to /t/, as it would in our formulation of the rule, the result would be [ð] regardless of the quality of the preceding vowel. What we will call the *assumed account* of Numic [r], that is, the account that is apparently widely assumed in the field, would then entail a low level adjustment or shift of Panamint [ð] to [r] following a back vowel. We must stress, however, that we find no statements in the literature concerning such an adjustment. What we do find is spirantization described in an either/or fashion, without formal rules or claims about ordering. For example, Dayley (1989a:407) writes of Panamint that "[f]ollowing nonfront vowels, t̲ is an unchecked flap (rather than a fricative). . . . Following front vowels, t̲ is an interdental fricative. . ." Also discussing Panamint, McLaughlin (1987:72-73) states than "in medial position, the simple oral stops undergo spirantization which also voices them. After a front vowel, /t/ is fronted, voiced, and spirantized to [ð] . . . . After other vowels, /t/ is voiced and lenited to the tap [r]." Throughout the Numic literature one finds references to both [ð] and [r] as "spirants" or as "spirantized forms of /t/," but while no one has explicitly claimed an [ð] to [r] shift, neither has anyone attempted to clarify the relationship between [r] and spirantization, which is our goal.

We will briefly discuss what we are calling the assumed account, then turn to an overview of work in other Central Numic languages to show that it appears to be widely held. Finally, we argue for an alternative analysis throughout Numic, one that avoids the problems inherent in the assumed account.

The assumed account appears to entail a late rule shifting [ð] to [r] when a back vowel precedes. What exactly does this rule say? The Panamint [r] is a

voiced alveolar tap (sometimes called a flap), virtually identical to the English [r] found in *meaty, needy*, etc. We are unprepared to defend any particular distinctive feature account of [r], as there is lack of agreement among phoneticians and phonologists on the exact articulatory-perceptual features of this phone. However, the rapidity of the articulatory gesture is clearly important. Among many others, Ladefoged (1975: 147), Smalley (1968:247) and Chomsky and Halle (1968: 318) all comment on this, the last also referring to a lack of vocal tract tenseness. Ladefoged (264) suggests that a relevant ". . .physical scale is the rate of movement of an articulator. . .," while Catford (1988:75) formally characterizes taps as "momentary (non-prolongable)" sounds.

Borrowing Catford's term "momentary" as a mnemonic for whatever features may be involved in [r], and taking dentals to be distributed and [r] to be nondistributed, the assumed account therefore seems to entail rule (5), which follows spirantization.

(5) [ð] to [r] shift

$$\begin{bmatrix} +\text{cont} \\ +\text{cor} \\ +\text{distr} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{distr} \\ +\text{momt} \end{bmatrix} \; / \; [+\text{back}] \; ____$$

Intuitively, however, there seems to be little or no reason for this change to take place. One might seek support for (5) from the variety of English having [r] where other speakers have [ð] in words like *mother, father*, etc., but here the [r] is clearly mediated by phonemic /d/ and results from a familiar rule applying to the two alveolar stops (*maddest, needy, batter, fittest*, etc.). This might suggest that after Panamint /t/ spirantizes to [ð], [ð] then reverts back to the stop [d] so as to mediate a shift to [r], but this would clearly be counterintuitive and costly, and no Numicist has ever suggested such an analysis.

We are left with Panamint rule (5) as an integral part of the assumed account, then, and despite the counterintuitive nature of the rule, something like it appears necessary for virtually all Numicists who claim that [r] is a member of the spirant series. As another example, we note that Miller's description of Shoshoni, the language most closely related to Panamint, says that "spirantized . . . forms of /t/ are interdental after a front vowel, a flap after other vowels" (1972:12; see also 1975). Representative forms are shown in (6).

(6) Shoshoni spirant series

/p/:	ny ßoha 'my power'
/t/:	siðɣhi ðyhyja 'these (dl. acc.) deer'
	ny rama 'my tooth'
/ts/:	ny zoo[6] 'my great grandparent/-child'
/k/:	ny ɣassa 'my wing'
/kw/:	ny ɣwaissi 'my tail'

Comanche, the third Central Numic language, shows a very restricted version of the pattern illustrated above, since only /p,t/ are involved and /t/ does not participate fully. Note in (7) that while Comanche [ß] lines up with Panamint and Shoshoni [ß], Comanche has [t] where the other languages have [ð].[7]

(7) Comanche spirant series

/p/:	ny ßuha 'my power'
/t/:	sitɣhi tyhyja 'these (dl. acc.) horses'
	ny rama 'my tooth'
/ts/:	ny tsoo? 'my great grandparent/-child'
/k/:	ny kasa 'my wing'
/kw/:	ny kwasi 'my tail'

In early work on Comanche carried out in the forties under the auspices of the Summer Institute of Linguistics, [ß] and [r] were assigned to autonomous phonemes /ß/ and /r/. In a typical treatment, Riggs (1949:229) notes two conditions under which morphophonemic alternations are phonologically defined: in utterance initial position /ß/ and /r/ are replaced by /p/ and /t/ respectively, and /r/ is replaced by /t/ following a front vowel.[8] Riggs presents alternate analyses of the Comanche consonant system, preferring that in which [ß] and [r] are taken to be voiced continuants, a class that also includes certain nasals and glides. Given the theoretical perspective of the period, and the brevity of Rigg's discussion, it is difficult to judge the exact extent to which the [p]/[ß] and [t]/[r] alternations are viewed as phonologically parallel. However, judging by the staement of phonologically conditioned alternation and the parallel classification of these sounds as oral stops and voiced continuants, we feel reasonably confident in believing that Riggs would subscribe to some version of the assumed account.

The more recent work in Comanche is virtually all uniform with the analyses of Panamint and Shoshoni as seen above, except for the severe restrictions on spirantization seen in (7). Miller's 1973 discussion

of Comanche historical phonology expresses the same analytical perspective as his synchronic Shoshoni work, so need not be illustrated here. The same is true of the historical work of McLaughlin 1992. Armagost 1988a,b, Charney 1989, Robinson and Armagost 1990, all again treat [ß] and [r] as spirantized forms of /p/ and /t/.

The one exception to this general picture that we are aware of is proposed in Armagost 1989, which rejects the assumed account of Comanche spirantization.[9] Rather than a shift from [ð] to [r], Armagost suggests an early rule of tap formation applying to intervocalic /t/ when the first vowel is [+back]. We state this rule as (8), in which the right edge environment blocks application to intervocalic /ts/.[10]

8) $\begin{bmatrix}-\text{cont}\\-\text{son}\\+\text{cor}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{momt}\\+\text{voice}\end{bmatrix} \quad / \quad [+\text{back}] _____ [+\text{syll}]$

The apparent effect of (8) is to bleed from the domain of spirantization just those instances of /t/ that surface as [r]. In one sense then these are exceptions to spirantization. But what is the domain of spirantization in Comanche? As can be seen in (7), from the perspective proposed here not a single /t/ undergoes the rule. Comanche spirantization is thus even more severely restricted than the assumed account portrays since only /p/ is affected, as in (9):

(9) $\begin{bmatrix}\text{Onset}\\|\\+\text{lab}\\-\text{round}\\-\text{son}\end{bmatrix} \rightarrow \begin{bmatrix}+\text{cont}\\+\text{voice}\end{bmatrix} \quad / \quad \begin{bmatrix}+\text{cont}\\+\text{voice}\end{bmatrix} _____$

Comparing the assumed and alternative accounts of the Comanche data, we believe the latter is clearly preferable in avoiding an unnatural [ð] to [r] rule. At the same time, tap formation rule (8) is perfectly straightforward even though the vowel must be restricted as [+back]. The grammar must certainly pay for this restricted environment in some way, and it seems more natural to limit the domain of tap formation than to restrict spirantization so that it would apply to all instances of /p/ but only those instances of /t/ that are preceded by a back vowel. Finally, this alternative account claims that tap formation and spirantization apply in overlapping environments, and

while there is nothing unnatural about either, each must still be stated. Such unavoidable repetition seems to us much less objectionable than the unnatural status of the dual aspects of the assumed account of Comanche--spirantization that applies to all instances of intervocalic /p/ but only to /t/ when preceded by a back vowel, and an unstated [ð] to [r] rule along the lines of (5).

Assuming the correctness of this alternative account of Comanche, what is the implication for Central Numic as a whole? Every language invariably shows [r] from /t/ after a back vowel, and this we would attribute to the existence in their grammars of something like tap rule (8). In Panamint and Shoshoni, tap formation bleeds spirantization, formulated along the lines of (4). The result of spirantization is therefore surface [β,ð,z,ɣ,ɣw], with [ð] only after front vowels. Spirantization is obligatory in Panamint and Western Shoshoni, but in Northern Shoshoni it is gradually becoming optional and remains obligatory only for /p/ (Miller n.d.). Thus, for Proto Central Numic we reconstruct tap rule (8) followed by spirantization rule (4). These rules remain, in that order, in most modern dialects. Spirantization in Northern Shoshoni is obligatory for /p/ but optional elsewhere, while in Comanche it has been lost entirely except for /p/.

The situation in the Western and Southern branches of Numic is similar to that in Proto Central Numic. In (10) we summarize for intervocalic /t/.

(10) intervocalic /t/...	[-back] _____	[+back] _____
Western Numic		
Western Mono	[ð]	[r]
Eastern Mono	[d]	[r]
Northern Paiute	[d,r]	[d,r]
Southern Numic[11]	[r]	[r]

Considering the data of Central, Western, and Southern Numic, we believe the best overall historical account would be as follows. The Western Numic data suggest a historically fairly early rule voicing the stops /p,t,ts,k,kw/ when intervocalic. We assume that at least as far back as Pre-Proto Numic there was a lenition rule along the lines of (11), which we refer to as Lenition I.

(11) Lenition I

$$\text{Onset} \\ | \\ [-\text{cont}] \rightarrow [+\text{voice}] \; / \; \begin{bmatrix} +\text{cont} \\ +\text{voice} \end{bmatrix} ____$$

Lenition I fed a tap formation rule that was added to the language simultaneously with Lenition I or at a later time. We give this rule as (12), formulated to pick out the [d] produced by Lenition I, but we do not know the exact details.

(12) Tap Formation

$$\begin{bmatrix} -\text{son} \\ +\text{voice} \\ +\text{cor} \end{bmatrix} \rightarrow [+\text{momt}] \; / \; ?? \; [+\text{back}] ____ \; [+\text{syll}]$$

If taps were originally sensitive to the front-back quality of vowels, as is currently true of Central and Western Numic, then this sensitivity was eventually lost in Southern Numic. On the other hand, the rule may originally have applied without regard to vowel quality, with a restriction later added outside of Southern Numic. In either case, another weakening rule was ordered after (12) and bled by it. This last rule, formulated as Lenition II in (13), changed all remaining intervocalic voiced stops into fricatives.

(13) Lenition II

$$\begin{bmatrix} -\text{son} \\ +\text{voice} \end{bmatrix} \rightarrow [+\text{cont}] \; / \; [+\text{cont}] ____$$

Lenition II is "spirantization" in the strict sense. Both Lenition I and Lenition II state weakening processes, and Tap Formation itself is merely another way of weakening the voiced dental (or alveolar) stop created by Lenition I. While the three daughter branches of Proto Numic show varying effects of these early rules, our principal concern has been the unnaturalness of the assumed account of [r] and a more satisfying analysis of the languages exhibiting this phone. In contrast to the assumed account, in which [r] is thought of either as a member, or a modified member, of the spirantized series, our alternative with its early tap formation rule accounts for the facts in a straightforward and natural way. If our analysis is right, [r] is not a spirant and has never passed through a stage when it was a spirant in any Numic language.

In support of our view that tap formation is unrelated to Numic spirantization, we note that there appear to be no languages in which /t/ becomes [r] as part of a general system of spirantization or lenition. In Old Irish (Kelly 1978:45), for example, underlying stops give rise to fricatives as follows, with /t/ becoming [θ]:

(14) underlying: p t k b d g
surface: f θ x v ð ɣ

In Finnish (Kelly 1978:14), the lenition system gives [d] from /t/:

(15) underlying: p t k
surface: v d ø

In Biblical Hebrew, spirantization again gives [θ] from /t/:

(16) underlying: p t k b d g
surface: ɸ θ x β ð ɣ

Finally, in Inupiaq Eskimo (Jeff Leer, p.c.), every stop is spirantized to a homorganic fricative except for /t/, which is not spirantized. This evidence from four stocks in Europe, the Middle East, and North America strongly suggests that /t/ cannot become [r] as part of a system affecting several points of articulation. While /t/ to [θ], [ð], or [d] as one component of a general pattern of spirantization or lenition is very common, we do not find /t/ to [r] in such cases. Compare the familiar version of the English tap rule that stipulates for the two alveolar oral stops a change to [+momentary]. For some speakers the rule is apparently less constrained, affecting /t,d,n,l/ (Smalley 1968:247). But even here, it is a single point of articulation that is involved.

NOTES

[1] This paper is a slightly revised version of that presented at the 91st annual meeting of the American Anthropological Association, San Francisco. We thank those who commented at that time.

[2] Geminating forms, such as *tyβa* 'pine nut' in (2), require an underlying stem final oral stop unspecified for point of articulation.

[3] Panamint examples are from McLaughlin 1987 and Dayley 1989a,b. Throughout the paper we cite forms in a broad phonetic notation but do not include stress. We have retranscribed some forms from other sources. /kw/, /ŋw/, [ɣ̞w] are rounded velars, /j/ is a palatal glide, /y/ is a high back unrounded vowel, and [I] is the voiceless counterpart of [i].

[4] In an unrelated process, strident consonants are palatalized by a preceding front vowel. Thus underlying /ts/ surfaces as [ž] where both spirantization and palatalization apply.

[5] Sapir (1930:45-46) was himself careful to differentiate between the spirants and the "rolled" consonants although he attributed the development of both to the same process of spirantization.

[6] Gosiute Shoshoni has [ny ðoo]. For as yet unclear reasons, some surface realizations of Gosiute /ts/ are strident and some nonstrident.

[7] For discussion of the historical situation that could have led to such a restricted distribution of voiced spirants in Comanche, see McLaughlin 1992.

[8] Riggs mentions only /i/. Presumably analysis had not progressed to the point where it was recognized that /e/ also conditions [t].

[9] McLaughlin 1992 mentions the alternative about to be presented, but does not pursue it.

[10] Our formulation of (8) differs in minor respects from that originally proposed by Armagost. Voiceless tap data reported by Charney 1989 would require further minor modification of rule (8).

[11] In Kaibab Southern Paiute, /t/ is palatalized to [tš] by a preceding /i/.

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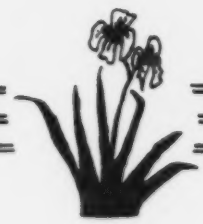

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